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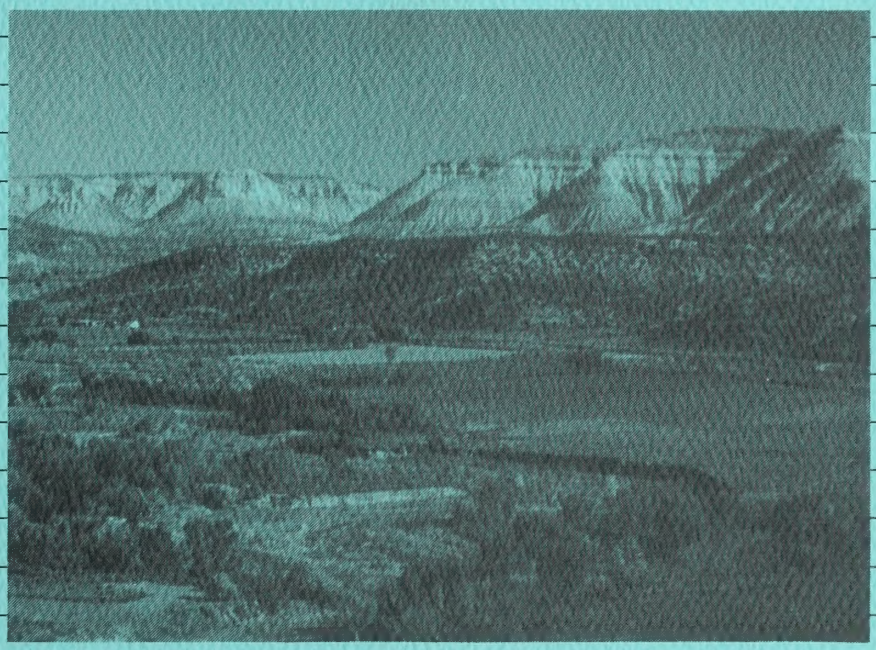
Final Environmental Impact Statement

TRANSCOLORADO GAS TRANSMISSION PROJECT

Colorado/NewMexico



U.S. Department of the Interior
Bureau of Land Management
Montrose District Office, Montrose Colorado

July 1992

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TRANSCOLORADO GAS TRANSMISSION PROJECT

ENVIRONMENTAL IMPACT STATEMENT

Draft ( ) Final (X)

Lead Agency: Department of the Interior
Bureau of Land Management

Cooperating Agency: Department of Agriculture
Forest Service

1. Type of Action: Administrative (X) Legislative ( )

2. ABSTRACT: This final Environmental Impact Statement (final EIS) analyzes three alternatives for the TransColorado Gas Transmission Project (TransColorado): (1) the Proposed Action, (2) the Agency Preferred Alternative, and (3) the No Action Alternative.

   The Proposed Action is to construct, operate, and maintain a natural gas pipeline and associated facilities for the purpose of transporting natural gas produced in the Rocky Mountain Region to a pipeline terminus at the Blanco gas treatment plant near Bloomfield, New Mexico. The Proposed Action consists of a 22- and 24-inch diameter pipeline, 6 new compressor stations, 1 upgraded compressor station, and 6 meter stations. The pipeline route proposed by TransColorado is 306 miles long.

   The Agency Preferred Alternative would allow construction, operation, and maintenance of the proposed TransColorado natural gas pipeline as described under the Proposed Action except along a different route. The agency preferred route would be 290 miles long.

   The No Action Alternative assumes the project would not be constructed.

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Date Final EIS made available to EPA and to the public: July 17, 1992

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SUMMARY

This final environmental impact statement (final EIS) analyzes the impacts of constructing and operating a new natural gas pipeline system in western Colorado and northwestern New Mexico. The pipeline would deliver natural gas produced in the Rocky Mountain Region to a junction with the El Paso and Transwestern pipeline systems near Bloomfield, New Mexico. The natural gas transported by the new natural gas pipeline would be commingled with gas from other sources and then distributed to Southern California and Midwest markets via the El Paso or Transwestern pipelines.

The pipeline is being proposed by the TransColorado Gas Transmission Company (TransColorado), which is a joint venture among Questar TransColorado, Inc., (subsidiary of Questar Pipeline Company), WestGas TransColorado, Inc. (subsidiary of Western Gas Supply Company), and KNEnergy TransColorado, Inc. (subsidiary of KNEnergy).

TransColorado has applied to the U.S. Department of the Interior (DOI), Bureau of Land Management (BLM) for right-of-way (ROW) grants and permits to cross Federal lands managed by the BLM and U.S. Forest Service (USFS). The BLM has assumed the administrative lead and is responsible for preparation of this final EIS. TransColorado has also applied to the Federal Energy Regulatory Commission (FERC) for a Certificate of Public Convenience and Necessity. On December 20, 1990, the FERC issued its order "Preliminary Determination on Non-Environmental Issues" approving the project subject to issuance of a final order addressing environmental aspects of the project.

ALTERNATIVES CONSIDERED IN PREPARATION OF THIS FINAL EIS

Several alternatives to building the TransColorado pipeline were considered in preparation of this final EIS. The alternatives included a No Action Alternative, an Energy Conservation Alternative, Pipeline System Alternatives, and End Use Alternatives. After careful evaluation and analysis, only the Proposed Action, Agency Preferred Alternative, and No Action Alternative were analyzed in detail in this final EIS.

Proposed Action

Project Description

Under the Proposed Action, the TransColorado natural gas pipeline system would be constructed, operated, and maintained as described in Chapter 2. The TransColorado proposed pipeline route would be 306 miles long. The outside diameter of the pipeline would be 22 and 24 inches. It would transport 300 million cubic feet of gas per day.

The pipeline would be constructed within a 75-foot-wide construction ROW, but the permanent ROW would be 50 feet in width. For purposes of analysis, it was assumed the entire acreage within the ROW would be disturbed. Six new compressor stations would be constructed: Questar-Piceance Creek (Milepost [MP] 0), WestGas-Meeker (MP 2.5), WestGas-DeBeque (MP 48.0), TransColorado-Olathe (MP 124.5), Rocky Mountain-Big Gypsum (MP 168.7), and TransColorado-Dolores Alternate 2 (MP 223.0). One existing compressor station near DeBeque (Rocky Mountain DeBeque MP 40.6) would be

expanded. Each compressor station would require disturbance of approximately 5 acres. Six meter stations, which measure the amount of gas going through the pipeline, would also be constructed. Each meter station would require disturbance of approximately 0.25 acre.

The total disturbance for pipeline construction would be 2,865 acres. This includes the clearing of the construction ROW, compressor stations, meter stations, and other related facilities for the proposed pipeline.

Block valves, pigging facilities (inspection devices), corrosion protection facilities (cathodic stations), and communication facilities would be included in the project. These facilities would be located within the permanent ROW or with compressor station and meter station sites.

Pipeline construction would take approximately 9 months beginning in April 1993 and ending in December 1993. The pipeline would be constructed by three crews (spreads) working in three separate locations along the pipeline, simultaneously. The three mainline construction spreads would employ an average of 480 workers each with a maximum of 550 persons during peak construction (a 10-week period). In total, approximately 1,440 workers would be employed at any one time during the construction phase. After construction is completed, approximately 20 workers would be employed for the operation of the pipeline and ancillary facilities.

Environmental protection measures developed from scoping meetings, general agency requirements, and standard industry practice would be applied to private, state, and Federal lands. An independent, private environmental inspector would be hired for each spread to monitor construction and ensure compliance with approved construction and environmental protection measures on private and state lands. A Federal authorized officer would be responsible for monitoring and compliance on Federal lands.

Impacts

Most impacts would be short-term. Impacts include, but are not limited to, the following:

- Air Quality and Noise. Fuel combustion by pipeline construction equipment would increase the concentrations of CO, NO_x, unburned hydrocarbons, and particulate matter (especially fugitive dust) for the short term along 1.4 pipeline miles per day for an estimated 218 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites. The daily fuel combustion emissions per mile from these activities are estimated to be equivalent to those emitted from a typical major urban street. Occupants of 42 residences would be exposed to a short-term (2 to 3 weeks) increase in pipeline construction spread-related noise and fugitive dust.

  Operation of seven compressor stations would increase the local (within 1 mile) concentrations of CO and NO_2. The maximum estimated increases would range from 10 to 19 percent of the allowable 1- and 8-hour CO concentrations, respectively. Maximum estimated NO_2 concentrations would be 11 times the annual average background level, less than 50 percent of the NAAQS. Although not subject to PSD permitting, the combined (existing and additional) Rocky Mountain-DeBeque compressor station shows a potential impact of 44.0 $\mu g/m^3$, which exceeds the PSD Class II NO_2 increment of 25 $\mu g/m^3$. Based on future review by the permitting authority, if an increment violation is expected to occur, the station would not be approved for construction. A plume visibility screening

analysis indicates that operation of compressor stations under the Proposed Action would not be perceptible at Dinosaur National Monument, Black Canyon of the Gunnison National Monument, or at Mesa Verde National Park.

Maximum project-related NO_2 concentrations over NPS administered lands would be less than 0.038 $\mu g/m^3$. Although this predicted concentration is well below (less than 2 percent) the applicable PSD Class I NO_2 increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS.

Compression stations would be designed to limit operational noise to 50 dBA at all occupied residences between 7:00 pm and 7:00 am, and 55 dBA during the day.

- Topography. Natural slope contour would be changed on 11 acres in the Ryman Creek drainage in Dolores County, which represents less than 1 percent of the construction ROW area.

- Leasable Minerals. No potential conflicts with oil and gas development and active oil shale and surface coal mine leases were identified. Construction of the pipeline could cause future conflicts with mining operations on 2.25 square miles of underlying coal that could be surface-mined, and on 9.25 square miles of underlying oil shale potentially yielding 25 gallons per ton. Market forces could dictate the feasibility of moving the pipeline.

  Construction of the TransColorado pipeline would provide transportation capacity that is approximately 2.5 times the present natural gas volumes sold from Piceance Basin sources. This capacity increase is expected to stimulate construction of gathering pipeline systems to connect with shut-in wells, and additional drilling in the Piceance Basin region.

- Mineral Materials. No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to an estimated 55 acres of unleased or privately owned mineral materials.

- Surface Water Quality. Trenching, pipe laying, and backfilling in 5 major rivers, 5 major streams, and 19 minor perennial streams would increase suspended sediment from several days to several weeks during and subsequent to the pipeline installation period. Salinity increases in the Colorado River would be 32 tons per year (maximum) for a 1- to 2-year period. Maximum suspended sediment increases (4 percent of daily mean sediment yield) from trenching are expected at the La Plata River crossings.

- Municipal Watersheds and Water Supplies. Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed and 43 acres in the Grand Junction watershed would slightly increase soil erosion, and slightly decrease the permeability of the ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes in both Palisade and Grand Junction municipal watersheds. Trenching across the Dolores and Animas Rivers would slightly increase suspended sediment at the Dolores municipal water treatment plant intake and at the Aztec alternate intake for a period of several days to weeks.

- Bureau of Reclamation Water Projects. Based on TransColorado's commitment to bore under lined canals, trench through unlined canals when they are not in use,

restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.

- Wetlands. Pipeline construction would decrease herbaceous vegetation cover on 13 acres of wet meadows/haylands for the short term; 2 acres of shrub wetlands for the long term, and decrease shrub and tree cover on 14 acres of forested wetlands for the long term. Much less than 1 percent of the wetlands in any watershed would be disturbed by pipeline construction.

- Soils. Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 1 to 5 years. Some increased erosion would be expected on the entire 2,865 acres. On areas of saline/alkaline soils (527 acres), steep (greater than 15 percent) slopes (336 acres), or shallow/rocky soils (1,090 acres) revegetation may be more difficult. Increases in salinity from erosion of saline areas would be a maximum of 32 tons per year. Over the long term, wind and water erosion losses and vegetation productivity losses from the pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.

- Prime and Unique Farmland. Pipeline construction would decrease production on 82 acres of prime farmland and 109 acres of farmlands of statewide importance. A fraction of 1 percent of the farmland in any county crossed by the pipeline would be taken out of production for two growing seasons.

- Forestry. Pipeline construction would remove conifer and aspen timber resources and pinyon-juniper fuelwood/fencepost resources from 900 acres. These would be long-term impacts equal to approximately 11 percent of the timber, fuel wood, and fencepost annual harvest from adjacent public lands (1990 harvest).

- Livestock Grazing. Pipeline construction would decrease AUMs by 238 but would not reduce stocking rates in any allotments crossed.

- Wildlife. Construction disturbance would decrease less than 1 percent of the surrounding key game ranges and vegetation types and would displace an unquantifiable number of animals. No regional population declines would result from pipeline construction for any species. A local population decline could occur for sage grouse utilizing the two leks that would be disturbed by construction activities.

- Fisheries. Pipeline construction would result in short-term increases in sedimentation and short-term losses of streambed substrate and biota in 15 Class I cold water rivers and streams and 14 Class II rivers and streams. The streambed disturbance would result in very limited fish mortality and no loss of fishery quality or recreational opportunities.

- Threatened and Endangered Species. Animals. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered animal species. The likelihood that emergency response actions would disturb threatened and endangered species during crucial periods is very low.

  Plants. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of most threatened and endangered plants. Twenty individuals of Uinta Basin hookless cactus and 350 individuals of DeBeque milkvetch would

be removed by construction activities. The likelihood that emergency response actions would impact rare plant populations is very low.

- Cultural Resources. Assuming approximately 15 percent of the NRHP-eligible sites could be avoided and approximately 30 percent of the remaining eligible sites would be excavated, approximately 55 percent of all NRHP-eligible sites could be partially destroyed by construction activities.

- Native American Religious Values. No Native American traditional use or religious areas are known at this time.

- Paleontological Resources. An undetermined number of fossils in the Class I paleontological localities would be excavated and would not be destroyed by construction activities. An undetermined number of fossils would be left in place and could be partially or totally destroyed by construction activities. Information about these sites would be disseminated to the scientific community.

- Visual Resources. Thirty locations along the proposed route have potential for high visual impact. Of the 30 locations, it was determined that by applying visual environmental protection measures, the high impact could be reduced to moderate or low in 19 locations. The remaining 11 locations would still result in a high (short- and long-term) visual impact on approximately 6.0 miles along the ROW at 8 locations and at 3 compressor stations. BLM VRM guidelines would be exceeded in 3 locations; USFS visual quality objectives (VQO) guidelines would also be exceeded in 3 locations. The visual impact to the Grand Mesa would be low except for the most critical viewpoint from Whitewater, which would be moderate.

- Transportation Systems. Construction would result in possible short-term traffic delays during road crossings and would require improvement or grading of 199 miles of dirt/gravel roads. Construction might damage dirt and graveled roads for the short term but not for the long term, as the roads would be repaired.

- Solid Waste Facilities. An estimated 4,360 cubic yards of construction-related solid waste would be generated by the Proposed Action and placed in licensed landfills along the pipeline route.

- Socioeconomic Conditions. Crop production would be precluded on 273 acres for 2 years. Construction activities will result in employment of approximately 360 local workers and local expenditures of $5.8 million by local and non-local workers. Rental housing, motel/hotel, and RV accommodations for the construction labor force might not be adequate during the summer.

  Operation of the pipeline would yield approximately $4.2 million in first-year property taxes, and $10,000 in ROW fees would be paid to Federal agencies for the first year. Based on current valuations, the annualized value of timber, fuel wood, and livestock forage removed from the ROW would represent approximately 11 percent of the annual Federal ROW fees. The value of crop production precluded on 273 acres for 2 years is estimated to be $44,800. Approximately 20 persons would be employed as operational staff. Payroll for this staff would result in local expenditures of approximately $219,000 annually for goods and services. Operation of the pipeline would increase the private land area committed to long-term utility uses by 787 acres. The combination of the TransColorado ROW with

existing parallel ROWs would preclude installation of buildings on an average of 12 percent of each of 15 land parcels crossed by the pipeline ROW. Each of the 15 parcels crossed is less than 20 acres in size.

TransColorado would negotiate an agreement to cross the 0.25 mile length of land recently acquired by the Southern Ute Indian Tribe. If such an agreement is not possible, TransColorado may realign the route approximately 500 feet to the east in the Colorado State Highway 140 ROW.

The Southern Utes, along with other San Juan Basin gas producers, would experience increased competition for sales of natural gas if the TransColorado pipeline were built. However, the extent to which this increased competition would affect sales is difficult to quantify because of uncertainties in estimating available gas supplies, future market prices, and future changes in pipeline capacity. Approval to construct the TransColorado pipeline would not singularly, unfairly, nor unjustly inhibit Southern Ute competition in the U.S. natural gas markets; the Trust Responsibility between the Secretary of the Interior and the Southern Ute Indians would not be violated.

- Public Safety. Operation of the pipeline would result in an estimated fatality rate of 1 death for every 410 years of operation, based on the incident rates reported for the entire U.S. for the 1970-1984 period.

Agency Preferred Alternative

Project Description

Under the Agency Preferred Alternative, the TransColorado natural gas pipeline system would be constructed, operated, and maintained as described under the Proposed Action except for two routing changes. The first routing change would occur in the Norwood area, and the second routing change would occur in the Mancos Valley area.

The agency preferred pipeline route would be 290 miles long. As under the Proposed Action, the outside diameter of the pipeline would be 22 and 24 inches. It would transport 300 million cubic feet of gas per day.

The pipeline ROW would be the same as that described under the Proposed Action except where the routes differ in the Norwood area and in the Mancos Valley area. As under the Proposed Action, six new compressor stations would be constructed: Questar-Piceance Creek (MP 0), WestGas-Meeker (MP 2.5), WestGas-DeBeque (MP 48.0), TransColorado-Olathe (MP 124.5), Rocky Mountain-Redvale (MP 160.6) (would replace the Proposed Action Rocky Mountain-Big Gypsum [MP 165.7]) and Dolores Alternate 1 [MP 203.5]. One existing compressor station, Rocky Mountain DeBeque (MP 40.6), would be expanded. Each compressor station would require disturbance of approximately 5 acres. Six meter stations would also be constructed. Each meter station would require disturbance of approximately 0.25 acre.

The total disturbance for pipeline construction would be 2,693 acres. This includes the clearing of the construction ROW, compressor stations, meter stations, and other related facilities for the proposed pipeline. The remaining ground disturbing activities and other project features would remain the same as those described under the Proposed Action.

Impacts

Most impacts would be short-term. Impacts include, but are not limited to, the following:

- Air Quality and Noise. Fuel combustion by pipeline construction equipment would increase the emissions of CO, NO_x, unburned hydrocarbons, and particulate matter (especially fugitive dust) for the short term along 1.4 pipeline miles per day for an estimated 207 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of seven compressor sites. The daily fuel combustion emissions per mile from these activities are estimated to be equivalent to those emitted from a typical major urban street. Occupants of 40 residences would be exposed to a short-term (2 to 3 weeks) increase in pipeline construction, spread-related noise and fugitive dust.

  Operation of seven compressor stations would increase the local (within 1 mile) concentrations of CO and NO_2. The maximum estimated increases would range from 10 to 19 percent of the allowable 1-hour and 8-hour CO concentrations, respectively. Maximum estimated NO_2 concentrations would be 11 times the annual average background level. No pollutant concentration would exceed 50 percent of the NAAQS. Although not subject to PSD permitting, the combined (existing and additional) Rocky Mountain-DeBeque compressor station shows a potential impact of 44.0 $\mu g/m^3$, which exceeds the PSD Class II NO_2 increment of 25 $\mu g/m^3$. Based on future review by the permitting authority, if an increment violation is expected to occur, the station would not be approved for construction. A plume visibility screening analysis indicates that operation of compressor stations under the Agency Preferred Alternative would not be perceptible at Dinosaur National Monument, Black Canyon of the Gunnison National Monument, or at Mesa Verde National Park.

  Maximum project-related NO_2 concentrations over NPS administered lands would be less than 0.038 $\mu g/m^3$. Although this predicted concentration is well below (less than 2 percent) the applicable PSD Class I NO_2 increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS.

  Compression stations would be designed to limit operational noise to 50 dBA at all occupied residences between 7:00 pm and 7:00 am, and 55 dBA during the day.

- Topography. Natural slope contours would be changed on 0 acres.

- Leasable Minerals. No potential conflicts with oil and gas development and active oil shale leases were identified. Construction of the pipeline could cause future conflicts with mining operations on 2.25 square miles of underlying coal that could be surface-mined, and on 9.25 square miles of underlying oil shale potentially yielding 25 gallons per ton.

  Construction of the TransColorado pipeline would provide transportation capacity that is approximately 2.5 times the present natural gas volumes sold from Piceance Basin sources. This capacity increase is expected to stimulate construction of gathering pipeline systems to connect with shut-in wells, and additional drilling in the Piceance Basin region.

- Mineral Materials. No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to an

estimated 55 acres of unleased or privately owned mineral materials.

- Surface Water Quality. Trenching, pipe laying, and backfilling in 5 major rivers, 5 major streams, and 21 minor perennial streams would increase suspended sediment from several days to 2 weeks during and subsequent to the pipeline installation period. Salinity increases in the Colorado River would be 23 tons per acre per year (maximum) for a 1- to 2-year period. Maximum suspended sediment increases (4 percent of daily mean sediment yield) from trenching are expected at La Plata River crossings.

- Municipal Watersheds and Water Supplies. Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed and 43 acres in the Grand Junction watershed would slightly increase soil erosion, and slightly decrease the permeability of the ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes in both Palisade and Grand Junction municipal watersheds. Trenching across the Dolores and Animas Rivers would slightly increase suspended sediment at the Dolores municipal water treatment plant intake and at the Aztec alternate intake for a period of several days to weeks.

- Bureau of Reclamation Water Projects. Based on TransColorado's commitment to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.

- Wetlands. Pipeline construction would decrease herbaceous vegetation cover on 14 acres of wet meadows/haylands for the short term; decrease shrub species cover on 1 acre of shrub wetlands for the long term, and decrease shrub and tree cover on 14 acres of forested wetlands for the long term. Much less than 1 percent of the wetland in any watershed would be disturbed by pipeline construction.

- Soils. Construction would increase soil erosion for the short term, generally stabilizing to preconstruction levels within 1 to 5 years. Some increased erosion would be expected on the entire 2,693 acres. On areas of saline/alkaline soils (382 acres), steep (greater than 15 percent) slopes (258 acres), or shallow/rocky soils (1,034 acres), revegetation may be more difficult. Over the long term, wind and water erosion losses would not be expected to exceed those presently occurring on adjacent, undisturbed soils.

- Prime and Unique Farmland. Pipeline construction would decrease production on 80 acres of prime farmland and 111 acres of farmland of statewide importance. A fraction of 1 percent of the farmlands in any county crossed by the pipeline would be taken out of production for two growing seasons.

- Forestry. Pipeline construction would remove conifer and aspen timber resources and pinyon-juniper fuelwood/fencepost resources from 745 acres. These would be long-term impacts equal to approximately 10 percent of the annual timber, firewood, and fencepost harvest from adjacent public lands (1990 harvest).

- Livestock Grazing. Pipeline construction would decrease AUMs by 226 but would not reduce stocking rates in any allotments crossed.

- Wildlife. Construction disturbance would decrease less than 1 percent of the surrounding key game ranges and vegetation types and would displace an unquantifiable number of animals. No regional population declines would result from pipeline construction for any species. A local population decline could occur for sage grouse utilizing the two leks that would be disturbed by construction activities.

- Fisheries. Pipeline construction would result in short-term increases in sedimentation and short-term losses of streambed substrate and biota in 15 Class I cold water rivers and streams and 16 Class II rivers and streams (see Appendix C, Table C-2). The streambed disturbance would result in very limited fish mortality and no loss of fishery quality or recreational opportunities.

- Threatened and Endangered Species. Animals. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered species. The likelihood that emergency response actions would disturb threatened and endangered species during crucial periods is very low.

  Plants. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered species. Twenty individuals of Uinta Basin hookless cactus and 350 individuals of DeBeque milkvetch would be removed by construction activities. The likelihood that emergency response actions would impact rare plant populations is very low.

- Cultural Resources. Assuming approximately 15 percent of the NRHP-eligible sites could be avoided and approximately 30 percent of the remaining eligible sites would be excavated, approximately 55 percent of all NRHP-eligible sites could be partially destroyed by construction activities.

- Native American Religious Values. No Native American traditional use or religious areas are known at this time.

- Paleontological Resources. An undetermined number of fossils in the Class I paleontological localities would be excavated and would not be destroyed by construction activities. An undetermined number of fossils would be left in place and could be partially or totally destroyed by construction activities. Information about these sites would be disseminated to the scientific community.

- Visual Resources. Twenty-six locations along the agency preferred route have potential for high visual impact. Of the 26 locations, it was determined that by applying visual environmental protection measures, the high impact could be reduced to moderate or low in 14 locations. The remaining 12 locations would still result in a high (short- and long-term) visual impact on approximately 7.3 miles along the ROW at 8 locations and at 4 compressor stations. Some of the locations of the high visual impacts would be different from the proposed route. BLM VRM guidelines would be exceeded at the same three locations as for the proposed route, while USFS VQO guidelines would be exceeded at one location, the Dolores River crossing, which is only partially on National Forest System lands. The visual impact to the Grand Mesa would be low except for the most critical viewpoint from Whitewater, which would be moderate.

- Transportation Systems. Construction would result in possible short-term traffic delays during road crossings and would require the improvement or grading of 183 miles of

dirt/gravel roads. Construction might damage dirt and graveled roads for the short term but not for the long term, as roads would be repaired.

- Solid Waste Facilities. An estimated 4,140 cubic yards of construction-related solid waste would be generated and disposed of in licensed landfills.

- Socioeconomic Conditions. Crop production would be precluded on 266 acres for 2 years. Construction activities would result in employment of approximately 360 local workers and local expenditures of $5.8 million by local and non-local workers. Rental housing, motel/hotel, and RV accommodations for the construction labor force might not be adequate during the summer.

  Operation of the pipeline would yield approximately $4.0 million in first-year property taxes, and $8,500 in ROW fees would be paid to Federal agencies for the first year. Based on current valuations, the annualized value of timber, fuel wood, and livestock forage removed from the ROW would represent approximately 11 percent of the annual Federal ROW fees. The value of crop production precluded on 266 acres for 2 years is estimated to be $43,624. Approximately 20 persons would be employed as operational staff. Payroll for this staff would result in local expenditures of approximately $219,000 annually for goods and services. Operation of the pipeline would increase the private land area committed to long-term utility uses by 860 acres. The combination of the TransColorado ROW with existing paralleled ROWs would preclude installation of buildings on an average of 12 percent of each of 15 land parcels crossed by the pipeline ROW. Each of the 15 parcels crossed is less than 20 acres in size.

  TransColorado would negotiate an agreement to cross the 0.25-mile length of land recently acquired by the Southern Ute Indian Tribe. If such an agreement is not possible, TransColorado may realign the route approximately 500 feet to the east in the Colorado State Highway 140 ROW.

  The Southern Utes would likely experience increased competition for natural gas sales of Tribal natural gas if the TransColorado pipeline were built. However, the extent to which this increased competition would affect natural gas sales is difficult to quantify because of uncertainties in estimating available gas supplies, future market prices, and future changes in pipeline capacity. Approval to construct the TransColorado pipeline would not singularly, unfairly, nor unjustly inhibit Southern Ute competition in the U.S. natural gas markets; the Trust Responsibility between the Secretary of the Interior and the Southern Ute Indians would not be violated.

- Public Safety. Operation of the pipeline would result in an estimated fatality rate of 1 death for every 426 years of operation, based on the incident rates for the entire U.S for 1970 to 1984 period.

No Action Alternative

If TransColorado were not constructed (No Action), the following impacts would be expected:

1. Surface disturbance required to construct the foreseeable cumulative projects, which includes projects that would overlap with TransColorado in space and time, would be decreased by 2,800 acres from approximately 32,800 to 30,000 acres. Identified short- and

long-term impacts to natural and human resources from pipeline construction and operation would not occur.

2. The infrastructure (gathering pipelines) necessary to link completed but shut-in Piceance Basin natural gas wells with transmission pipelines would be constructed, but likely at a slower rate than if TransColorado were built. The specific locations of these future developments cannot be defined at this time.

3. A delay in construction of an interstate natural gas pipeline to transport Piceance Basin gas from wells drilled under the coalbed methane program may result in a loss of producer tax incentives because of the requirement to produce gas from wells eligible for the incentives within 10 years of well completion.

4. If TransColorado were not constructed, other existing pipeline proposals2 (CIG Uinta Basin Lateral, Questar Main Line No. 58 Upgrade) may be constructed. Alternatively, another pipeline proposal would likely be submitted to land management agencies to provide a similar service to shut-in Piceance Basin natural gas producers. The timing, location, and interconnections with gas suppliers for such an alternative pipeline proposal are unknown.

5. The Southern Utes may lose an undetermined amount of royalty revenues due to continued competition among all San Juan Basin gas producers for natural gas sales. If the TransColorado pipeline were not built, 300 MMcfd of natural gas could not be transported to market via the El Paso or Transwestern pipeline systems.

6. Estimated tax revenues of $4.2 million per year (first year of operation) would not be received by counties crossed by the pipeline. Operational payroll of $60,800 per month would not be available for local purchases of good and services.

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CHAPTER 1

INTRODUCTION

INTRODUCTION

TransColorado Gas Transmission Company (TransColorado) proposes to construct, operate, and maintain a 306-mile, natural gas pipeline and associated facilities across Federal, state, and private lands between the Piceance Basin southwest of Meeker, Colorado, and Bloomfield, New Mexico (Figure 1-1 and maps in the back of this document). TransColorado is a joint venture among Questar TransColorado, Inc. (subsidiary of Questar Pipeline Company), WestGas TransColorado, Inc. (subsidiary of Western Gas Supply Company), and KN TransColorado, Inc. (subsidiary of KNEnergy). The three partners currently own and operate natural gas pipeline systems in the Rocky Mountain Region, including Wyoming, Utah, New Mexico, and Colorado.

Before the pipeline can be constructed, TransColorado must obtain a variety of Federal, state, county, and local permits, rights-of-way (ROW), and licenses. Federal authorizations from the following agencies are required: the Bureau of Land Management (BLM), the Forest Service (USFS), the U.S. Army Corps of Engineers (COE) and the Federal Energy Regulatory Commission (FERC). As part of the permitting process, the Federal agencies must analyze the impacts of the project under the National Environmental Policy Act (NEPA). In accordance with NEPA, an environmental impact statement (EIS) must be prepared for projects that are projected to have a significant impact on the quality of the environment.

This final EIS serves as the mechanism for satisfying the requirements of NEPA. It analyzes the environmental impacts of construction, operation, and maintenance of the pipeline. The BLM Montrose District Office has been designated the lead Federal agency for preparation of the final EIS. The USFS and the FERC are cooperating Federal agencies with primary review responsibilities.

This final EIS has been prepared by ENSR Consulting and Engineering under the direction of the BLM and USFS.

PURPOSE OF AND NEED FOR THE PROJECT

The primary study area for this final EIS is the nine counties in western Colorado and San Juan County, New Mexico (see maps in the back pockets of this document). TransColorado (1990) states that "the purpose of the proposed TransColorado Gas Transmission Project is to provide a regional natural gas transmission system to transport natural gas from the Western Slope of Colorado and the Rocky Mountain region to major interconnections with other interstate pipelines for ultimate delivery to Southwest, Midwest, and California markets." The pipeline has been designed to transport 300 million cubic feet of natural gas per day (MMcfd).

TransColorado indicates that the need for natural gas transportation services varies with demand. Demand varies seasonally. Demand also varies in response to changes in industrial activity and fluctuating fuel prices. In areas where multiple pipelines provide transportation service, brokers attempt to purchase gas that can be transported and delivered to end-use markets at the lowest cost. Under deregulated market assumptions, TransColorado believes that natural gas prices in areas that are served by multiple natural gas sources and transportation systems are strongly influenced by competition among suppliers.

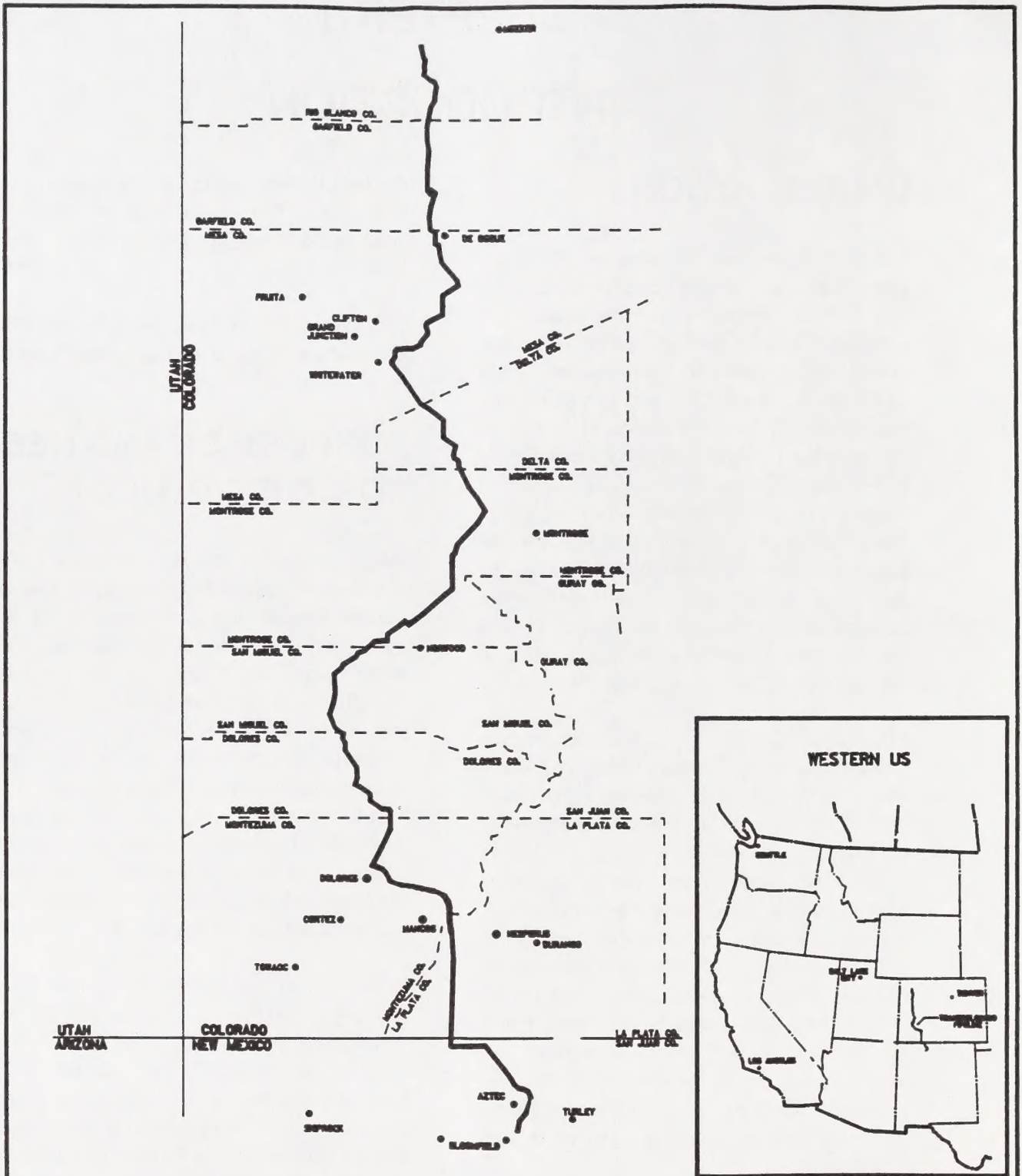

Figure 1-1
PROPOSED PIPELINE ROUTE

TransColorado Gas Transmission Project

ENSR

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Under these "free market" assumptions, natural gas pipeline companies are expected to be highly competitive with each other, and to develop pipeline systems that have the flexibility to respond to the demands of a variety of markets in a cost-competitive manner.

The FERC, which has the responsibility to regulate interstate natural gas transmission, developed its optional certificate program in order to meet the following goals: (1) to provide the full benefits of competition to consumers by facilitating easier entry and exit from services; (2) to ensure the most efficient scale for facilities by removing certification as a barrier to entry; and (3) to provide incentives for competition where none exists by maximizing the use of alternative market access for producers and consumers. Under this process, the applicant is not required to file market or gas supply data to the FERC to determine public convenience and necessity, and the application review times are reduced. In return, the applicant must assume full economic risk for the project, and must provide open-access transportation to gas suppliers.

On July 20, 1990, TransColorado filed an application with the FERC (Docket No. CP90-1777-000) for an optional certificate. On December 20, 1990, FERC issued a preliminary determination granting that certificate authorization of TransColorado's facilities solely on the basis of non-environmental issues would be in the public convenience and necessity. In its findings, the FERC stated that the project has firm backing from its partners, would provide an advantageous configuration for the supply areas that the pipeline would serve, and would substantially enhance transportation options in the Rocky Mountain area. The FERC noted that the TransColorado pipeline would be an additional north-south transportation bridge in the Rocky Mountain Region along with the transmission system of Northwest Pipeline Corporation (Northwest). The FERC stated that the TransColorado pipeline would act as a stimulus to additional development of gas reserves in the Rocky Mountain Region adjacent to the pipeline.

NATURAL GAS SUPPLY AND DEMAND

Natural Gas Uses and Demands in the Midwest and California

TransColorado believes there is a large market for natural gas in the Midwest and California. In the Midwest, natural gas is used to fuel industrial boilers and turbines to generate electrical energy and to provide residential and industrial space heating. In addition to the uses described for the Midwest, large volumes of natural gas will be used in southern California to generate steam for the secondary recovery of heavy crude oil in the southern Central Valley oil fields. There is also an increased demand for natural gas to fuel vehicle fleets.

Amendments to the Clean Air Act have contributed to increased demand for natural gas. In an effort to clean up the air, major metropolitan areas throughout the United States are substituting natural gas for other hydrocarbon fuels to reduce the pollutant quantities that lead to the formation of ozone and nitrogen oxides.

Natural Gas Supply in Western Colorado

In addition to the "free market" system, a Federal subsidy to encourage companies to develop non-conventional energy sources has contributed to increased natural gas supplies. In 1980, the U.S. Department of Energy (DOE) initiated a 10-year program to encourage the development of these sources, which included coalbed methane. Over the past 10 years, numerous new

wells have been drilled into coalbed methane sources in northwestern Colorado (Piceance Basin), southwestern Colorado, and northwestern New Mexico (San Juan Basin). Combined with existing shut-in wells in northwestern Colorado, the newer coalbed methane wells will require new gathering systems and interstate transmission pipelines to transport this gas. Congress re-authorized the non-conventional energy program in 1990, which is expected to stimulate additional drilling.

TRANSCOLORADO PARTNER SYSTEMS

Figure 1-2 shows locations of the existing gathering, transmission (intrastate and interstate), and distribution systems of the TransColorado partners and the interconnections to the proposed TransColorado pipeline. Figure 1-3 illustrates the major natural gas production in western Colorado and southern Wyoming. Table 1-1 provides estimates of the gas to be delivered to the TransColorado system at the various interconnection points along the line.

Gas supplies for the TransColorado pipeline system would be provided from existing and future conventional and coalbed methane wells. Environmental documentation is carried out on all wells located on Federal lands at the time well development is initiated. These environmental documents are available for review at the appropriate Federal agency office.

End uses of the natural gas shipped on the TransColorado system are assumed to be for use in industrial applications to generate steam and electricity, to heat residences, and to power vehicles.

TABLE 1-1

TransColorado Gas Transmission Project
Proposed Deliveries to the TransColorado System
at Interconnection Points

Supplier	Interconnect Point	MilePost	Gas Volume (MMcfd)
Questar	Big Hole	0.0	156.7
WestGas	Meeker	2.5	35.0
Rocky Mountain	DeBeque	40.6	50.0
WestGas	DeBeque	48.2	35.0
Rocky Mountain	Big Gypsum	168.5	25.0
Total			301.7

Source: TransColorado 1990.

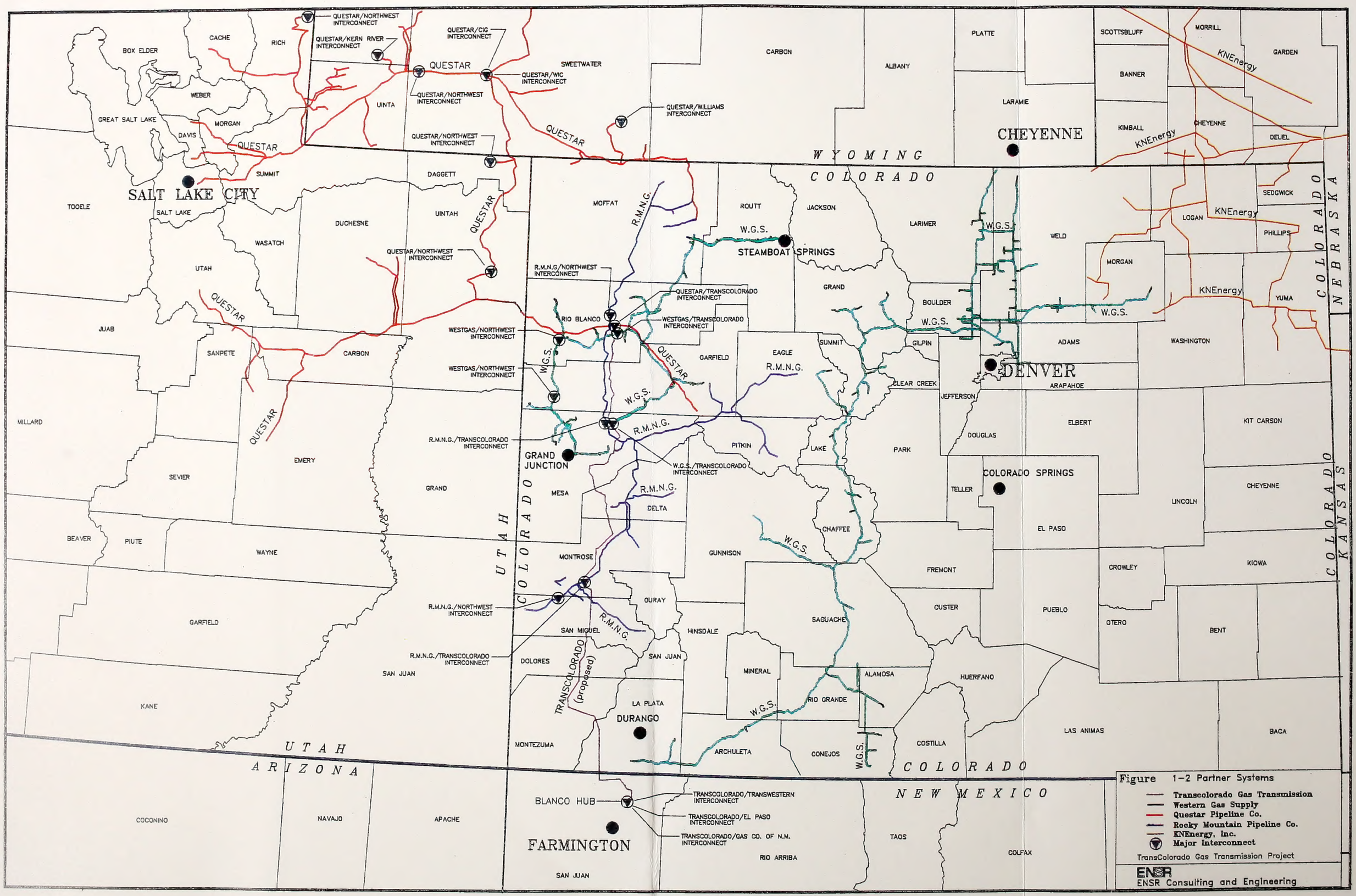

Figure 1-2 Partner Systems

- Transcolorado Gas Transmission
- Western Gas Supply
- Questar Pipeline Co.
- Rocky Mountain Pipeline Co.
- KNEnergy, Inc.
- Major Interconnect

TransColorado Gas Transmission Project

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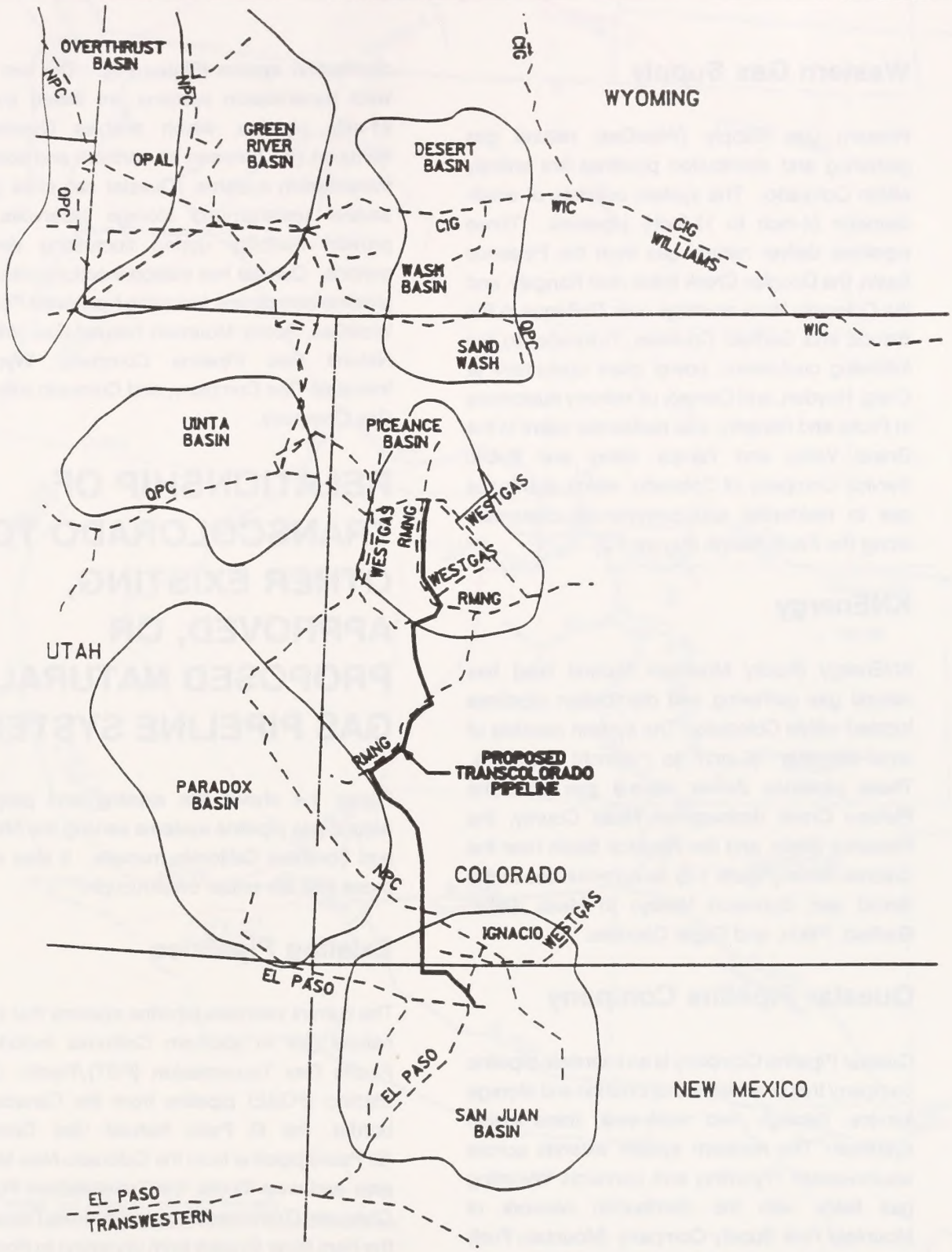

Figure 1-3 REGIONAL NATURAL GAS PRODUCTION BASINS

TransColorado Gas Transmission Project

ENSR

4/22/91 HTR 28190

Western Gas Supply

Western Gas Supply (WestGas) natural gas gathering and distribution pipelines are entirely within Colorado. The system consists of small-diameter (4-inch to 12-inch) pipelines. These pipelines deliver natural gas from the Piceance Basin, the Douglas Creek fields near Rangely, and the Colorado River drainage near DeBeque in Rio Blanco and Garfield Counties, Colorado, to the following customers: power plant customers at Craig, Hayden, and Cameo; oil refinery customers in Fruita and Rangely, and residential users in the Grand Valley and Yampa Valley and Public Service Company of Colorado, which distributes gas to residential and commercial customers along the Front Range (Figure 1-2).

KNEnergy

KNEnergy (Rocky Mountain Natural Gas) has natural gas gathering and distribution pipelines located within Colorado. The system consists of small-diameter (6-inch to 10-inch) pipelines. These pipelines deliver natural gas from the Plateau Creek drainage of Mesa County, the Piceance Basin, and the Paradox Basin near the Dolores River (Figure 1-2) to communities in the Grand and Gunnison Valleys in Mesa, Delta, Garfield, Pitkin, and Eagle Counties.

Questar Pipeline Company

Questar Pipeline Company is an interstate pipeline company that provides transportation and storage service through two east-west transmission systems: The northern system extends across southwestern Wyoming and connects Wyoming gas fields with the distribution network of Mountain Fuel Supply Company (Mountain Fuel) in the Salt Lake City metropolitan area; the southern system links the Uinta Basin in northeastern Utah and the Piceance Basin in northwestern Colorado with the Mountain Fuel distribution system (Figure 1-2). The two east-west transmission systems are linked by an 81-mile pipeline, which enables Questar to transport gas between its northern and southern transmission systems. Questar can store gas in several underground storage reservoirs that provide flexibility during fluctuating demand periods. Questar has interconnections with other pipeline companies, including Northwest Pipeline, WestGas, Rocky Mountain Natural Gas, Williams Natural Gas Pipeline Company, Wyoming Interstate Gas Company, and Colorado Interstate Gas Company.

RELATIONSHIP OF TRANSCOLORADO TO OTHER EXISTING, APPROVED, OR PROPOSED NATURAL GAS PIPELINE SYSTEMS

Figure 1-4 shows the existing and proposed natural gas pipeline systems serving the Midwest and Southern California markets. It also shows those that are under construction.

Existing Pipelines

The current interstate pipeline systems that supply natural gas to southern California include the Pacific Gas Transmission (PGT)/Pacific Gas & Electric (PG&E) pipeline from the Canada-U.S. border, the El Paso Natural Gas Company (El Paso) pipeline from the Colorado-New Mexico area and west Texas, the Transwestern Pipeline Company (Transwestern) pipeline from Texas, and the Kern River System from Wyoming to Southern California. The total capacity of the current interstate pipeline system is 5,351 MMcfd. The certificated capacity of the El Paso interstate system at the California-Arizona border is

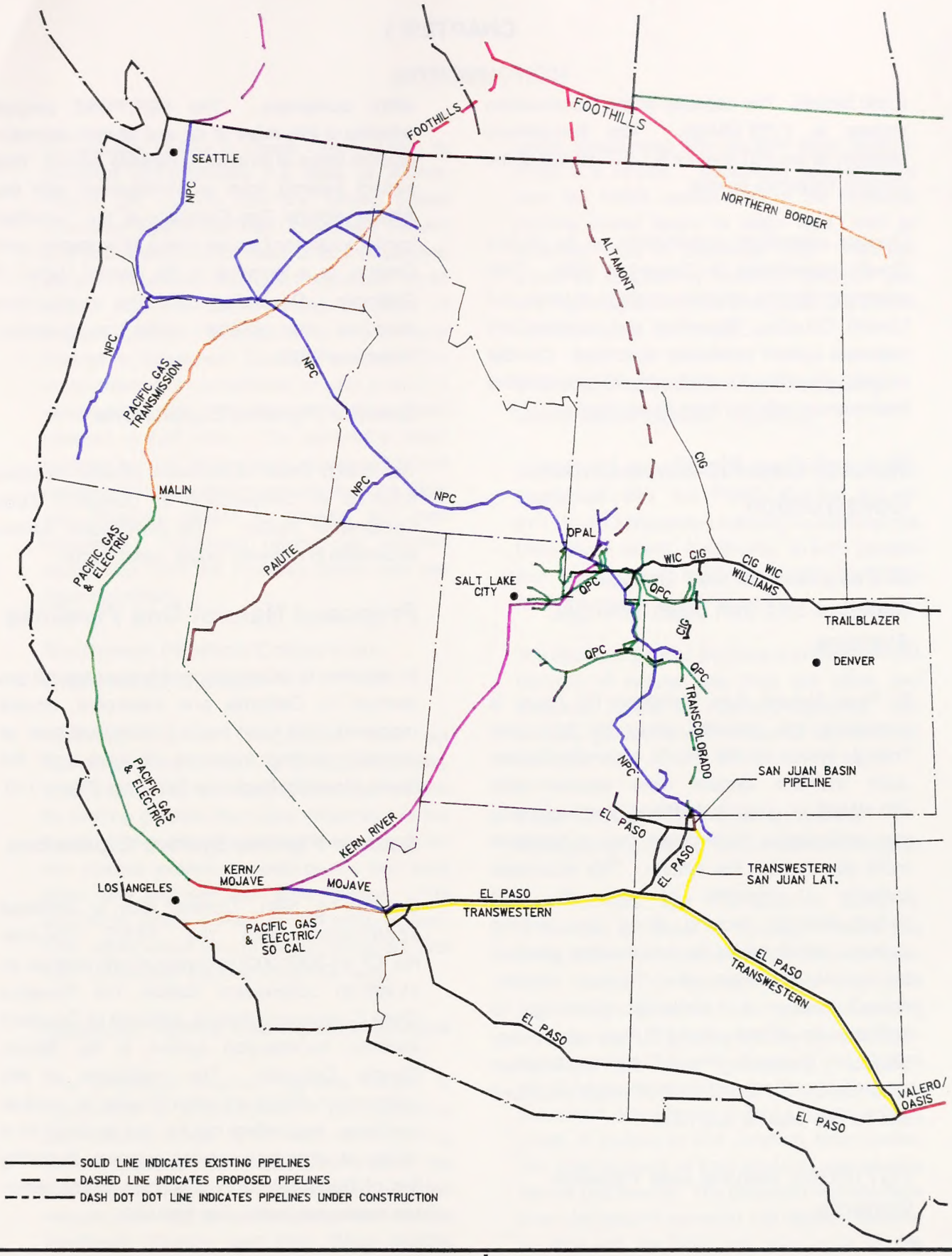

Figure 1-4

EXISTING AND PROPOSED INTERSTATE NATURAL GAS PIPELINES SERVING WEST COAST AND MIDWESTERN MARKETS

TransColorado Gas Transmission Project

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3,290 MMcfd. The capacity of the Transwestern system is 1,270 MMcfd. The firm-delivery capacity of the PGT system is 1,017 MMcfd at the Oregon-California border.

Questar completed construction on its Muddy Creek Interconnect in December 1991. This operating pipeline crosses portions of Uinta and Lincoln Counties, Wyoming, and supports the interstate system previously described. Questar recently completed a 20.5-mile, 20-inch pipeline interconnect with the Kern River pipeline.

Natural Gas Pipelines Under Construction

El Paso Natural Gas Company Mainline and San Juan Triangle Systems

El Paso Natural Gas Company (El Paso) is increasing the capacity along its San Juan Triangle system by 835 MMcfd, expanding its San Juan mainline system from approximately 400 MMcfd to about 806 MMcfd, and increasing gas compression horsepower (hp) to transport more gas through the system. This expansion includes 11 segments of 42-, 36-, and 34-inch-diameter looping along the existing systems, which would be constructed between Blanco, New Mexico, and Topock, Arizona. TransColorado is currently planning to interconnect with the existing El Paso system near Blanco. Depending upon the construction schedule, the El Paso expansion would be placed into service prior to July 1992.

PGT/PG&E Natural Gas Pipeline Systems

PGT/PG&E is increasing the capacity of it existing system by 903 MMcfd for the delivery of Canadian and United States gas to California municipal and utility customers. The PGT/PG&E project consists of 845 miles of 42- and 36-inch-diameter pipeline loops of an existing pipeline system. This system extends from an interconnect with the Alberta Natural Gas Company at the Canadian border southward across Idaho, Washington, and Oregon, to a terminus in the Central Valley of California. Depending upon the construction schedule, the pipeline would be in-service November 1993.

Questar Pipeline Expansions

The Muddy Creek Interconnect pipeline includes 5,600 hp of compression at Questar's Eakin Compressor Station. This compressor station expansion is currently under construction.

Proposed Natural Gas Pipelines

In response to expectations of greater natural gas demand in California and elsewhere, several proposals have been made to construct new, or upgrade existing, interstate pipelines from the Rocky Mountain Region to California (Figure 1-4).

Questar Pipeline System Expansions

On May 16, 1991, Questar filed a certificate application with the FERC (Docket No. CP 91-2067-000) to construct and operate an 11,400 hp compressor station, the Piceance Creek Compressor Station, adjacent to Questar's southern transmission system in Rio Blanco County, Colorado. The installation of this compressor station will allow Questar to receive, compress, and deliver natural gas destined for a variety of other transmission systems, including that of TransColorado. This compressor station has been analyzed in this final EIS.

Questar applied to the FERC on July 3, 1991 (Docket CP91-2394-000) to add 15,888 horsepower of compression at its Fidlar

Compressor Station in Uintah County, Utah; to construct approximately 3.5 miles of 20-inch natural gas pipeline from the Natural Buttes production field to the Fidlar Compressor Station; and to construct a 42.3 miles of 20-inch pipeline parallel to Questar's Main Line No.58 which would extend from the Utah-Wyoming boundary in Daggett County, Utah, to the vicinity of Rock Springs in Sweetwater County, Wyoming. The environmental documentation for this project is contained in a BLM Environmental Assessment released in April 1992. The applicant's stated purpose for this project is to provide additional natural gas transportation capacity from the Uinta and Piceance Basins to existing and new customers. Estimated natural gas volumes transported from the Piceance Basin have not been quantified.

Northwest Pipeline Corporation (Northwest) System

Northwest Pipeline Corporation filed an application with the FERC (Docket No. CP91-780-000) to add compression and expand its existing pipeline from Opal, Wyoming, to the Pacific Northwest. The primary gas sources for this pipeline expansion would be the San Juan Basin and imported gas from Canada. This expansion would consist of 379 miles of new, loop, replacement lines of various diameters, and new compressor stations along the route.

Altamont Natural Gas Pipeline System

The proposed Altamont pipeline, which is represented by a consortium of gas producers and utilities, would be a new, 620-mile-long, 30-inch pipeline that would extend from the Canadian border southward across Montana and western Wyoming to an interconnection with the Northwest Pipeline and Kern River pipeline systems at Opal, Wyoming. At Opal, the pipeline would interconnect with the Kern River pipeline, which is in service. Depending upon approval from the FERC, construction of the proposed pipeline would begin in early 1993, with an in-service date in December 1993. Altamont would be supplied by imported Canadian gas, and Wyoming and Montana sources. This project would transport 719 MMcfd.

Colorado Interstate Gas Company Uinta Basin Lateral Pipeline

Colorado Interstate Gas Company (CIG) filed an application with the FERC (Docket No. CP 91-1110-000) requesting authority to construct the Uinta Basin lateral, a 223-mile, 20-inch pipeline from Uintah County in eastern Utah to the vicinity of Wamsutter in central Wyoming.

The applicant's stated purpose is to transport 174 MMcf/d of natural gas from the Uinta and Piceance Basins to interstate pipelines, with ultimate gas delivery to California and midwest markets.

Four Corners Gas Transmission Company Line 90 Conversion Project

Four Corners Gas Transmission Company announced its intent to transport natural gas along a 490-mile pipeline system from northwest New Mexico to Southern California. The proposed facility would be comprised of existing 12-inch and 16-inch crude oil pipelines. Approximately 23.5 miles of natural gas pipeline would be constructed from the Blanco Plant near Bloomfield, New Mexico, to Four Corners' existing crude oil pipeline at Bisti Junction, New Mexico. The existing crude oil lines would be converted to natural gas service. The proposed facilities have been designed to transport 100 MMcfd. To date, no filing with the FERC has been made for this project.

RELATED PROJECTS

In addition to the natural gas pipeline systems previously described, other oil and gas projects, waste cleanup projects, and water development projects that are operating or may be constructed during the TransColorado construction and short-term (5-year) operational periods are presented in Table 1-2. These projects provide the basis for evaluating the cumulative effects of constructing and operating the TransColorado project.

FEDERAL APPROVAL PROCESS AND AUTHORIZING ACTIONS

BLM and USFS ROW Grants

Following publication of the final EIS, the BLM and USFS will issue records of decision (RODs), approving or denying the requested TransColorado ROW grant on BLM and USFS lands. If the project is approved the RODs will indicate the approved route on BLM/USFS lands. The BLM will issue the ROW grant on BLM and USFS lands simultaneously with the RODs if the project is approved. The ROW grant would be for a 50-foot wide permanent ROW and include a temporary use permit authorizing disturbance to an additional 25 feet for construction purposes. The ROW grant would also include the 5-acre Olathe compressor station located on BLM lands. Attached to the RODs and subsequent ROW grant issued by BLM would be the: (1) environmental protection measures for Federal lands, (2) the U.S. Fish and Wildlife Service (USFWS) biological opinion (BO) for threatened and endangered species, (3) the Colorado and New Mexico State Historic Preservation Officers' (SHPO) and Advisory Council on Historic Preservations ACHP) Office's concurrence with proposed treatment of cultural resources, and (4) additional mitigation measures or permit conditions required by the USFWS, BLM, and USFS.

In addition to acquiring the ROW grant, TransColorado must acquire all of the necessary permits or licenses from the Federal and Federal-state agencies with jurisdiction by law. Table 1-3 lists the Federal and Federal-state agencies with jurisdiction by law, a statutorily mandated consultative role, or special expertise on environmental quality issues for this project.

Two statutorily mandated consultations and inventories discussed below must be completed prior to the BLM and USFS making a decision. These consultations are needed to ensure environmental compliance under NEPA prior to the BLM and USFS making any irretrievable commitment of resources.

Section 7 Consultation Under the Endangered Species Act

A draft biological assessment (BA) (ENSR 1992) and a draft USFWS BO (USFWS 1992) have been prepared for threatened and endangered plant and animal species based on incomplete field inventories of the final EIS agency preferred route. The results of the draft BA are incorporated in this final EIS. The draft USFWS BO is included in Appendix E.

In their draft BO, the USFWS addressed concerns about Federally-listed endangered fishes in the upper Colorado River in Colorado and the San Juan Basin rivers in New Mexico. The BO also addressed concerns about the Uinta basin hookless cactus. Their draft BO listed several conservation recommendations that would mitigate impacts both to the fishes and to the cactus. The conservation recommendations consisted of the following: 1) A one-time fee paid to a recovery program to mitigate impacts to upper Colorado River endangered fishes as a result of any water depletions; 2) testing of

TABLE 1-2

TransColorado Gas Transmission Project - Related Projects

Project Description	Status	Location	Comments
Pipelines			
Rocky Mountain Natural Gas	In Operation	Western Colorado	2,000 miles of pipeline 50-foot right-of-way (ROW)
WestGas	In Operation	Western Colorado	798 miles of pipeline 50-foot right-of-way (ROW)
MAPCO Liquids	In Operation	Texas to Wyoming	1,172 miles of pipeline 15- to 50-foot ROW
Shell CO_2	In Operation	Montezuma and La Plata Counties, Colorado San Juan County, New Mexico (adjacent to TransColorado in La Plata, and San Juan Counties)	478 miles of pipeline 65-foot ROW
NWPL	In Operation	Bloomfield, New Mexico to Ignacio, Colorado	33.4 miles 30-inch pipeline
Kern River	In Operation	Opal, Wyoming to Southern California	837 miles, 30- to 36-inch line
Questar Pipeline	In Operation	Mesa, Garfield, and Rio Blanco Counties, Colorado	121 miles, 6-, 10-, and 14-inch pipeline, 50-foot ROW
Questar Pipeline Upgrade	In Partial Operation	Uinta and Lincoln Counties, Wyoming	20.5 miles of 20-inch pipeline (completed) and 5,600 hp of compression (under construction)

TABLE 1-2 (CONTINUED)

Project Description	Status	Location	Comments
Questar Pipeline Upgrade	Proposed	Daggett and Uintah Counties, Utah, and Sweetwater County, Wyoming	3.5 miles of 20-inch interconnect pipeline; 42.3 miles of loop pipeline; addition of 15,888 hp to existing compressor station
Colorado Interstate Gas Uinta Basin Lateral	Application Filed Under Construction (Summer 1992)	Utah to Wyoming	222 miles, 20-inch line, 50-foot ROW, Compressor stations in Rio Blanco County
ENRON/Transwestern	In Operation	Bloomfield, New Mexico to Topock, Arizona	316 miles of 30-, 24-, and 6-inch new and loop line
EPNG	Under Construction	Bloomfield, New Mexico to Topock, Arizona	231 miles of 42-, 36-, and 34-inch loop line
NWPL	Application Filed, as Amended	Ignacio, Colorado to Pacific Northwest	379 miles of new, loop, and replacement lines in four states and 114,035 hp of compression
Four Corners/System 90	Announced	Bloomfield, New Mexico to Southern California	490 miles 12-inch and 16-inch line
Gas Gathering System			
Conoco Inc.	In Operation	Rio Blanco County, Colorado	99 gas wells in-fill program in Dragon Trail Unit and associated roads and pipeline
CAI SW Rangely Field	In Operation	Rio Blanco County, Colorado	69 gas wells, 20 miles pipeline, 20 miles access roads
Conquest Oil Company South Shale Ridge	In Operation	Mesa and Garfield Counties, Colorado	42 coal bed methane wells and associated access roads

TABLE 1-2 (CONTINUED)

Project Description	Status	Location	Comments
Unocal Corporation Buzzard Creek	Application Filed	Mesa County, Colorado	25 to 55 gas wells, 35 miles of new or upgraded access roads, 30 miles of pipeline
Meridian Oil Long Hollow Oil and Gas Field	In Partial Operation	La Plata County, Colorado	46 coal bed methane wells
Unocal Corporation Rincon Unit	Under Construction	Rio Arriba County, New Mexico	10.8 miles of gathering pipelines
Amoco Production Corporation Cedar Hill Gathering System	In operation	San Juan County, New Mexico	26 miles of gathering pipelines
Amoco Horse Canyon and Manzanares Gathering System	In Operation	San Juan County, New Mexico	92 miles of gas and produced water pipelines
William Field Service Manzanares Gathering System	In Partial Operation, On-Going	San Juan County, New Mexico	34 miles of gas pipeline
Oryx Coal Bed Methane Development	Application Filed	Mesa and Garfield Counties, Colorado	20 coal bed methane wells, 10-acre gas treatment facility
Amoco Gas Gathering	In Partial Operation	San Juan County, New Mexico	Coal bed methane, 89 miles of pipeline, 29 wells
Meridian Val Verde Gathering System	In Partial Operation	San Juan and Rio Arriba Counties, New Mexico	257 miles of coal bed methane recovery pipeline
Meridian Central Delivery Points	In Partial Operation	San Juan County, New Mexico	9.4 miles pipelines

TABLE 1-2 (CONTINUED)

Project Description	Status	Location	Comments
Meridian MOGI 32-9 and Unicon Gathering System	In Operation	San Juan County, New Mexico	97 miles of gathering pipelines
Blackwood and Nichols	In Partial Operation	San Juan County, New Mexico	64.4 miles of coal bed methane recovery pipeline
Phillips Gas Gathering Project	Application Filed	San Juan County, New Mexico	160 miles 4-inch to 10-inch line coal bed methane recovery
Union Oil	Application Filed	San Juan County, New Mexico	17 miles of gas recovery pipeline
Gas Plants			
Ignacio NWPL Gas Plant	In Operation	La Plata County, Colorado	
Blanco EPNG Gas Plant	In Operation	Bloomfield, San Juan County, New Mexico	
Water Projects			
Florida Irrigation Project	In Operation	La Plata County, Colorado	
Jackson Gulch Reservoir	In Operation	Montezuma County, Colorado	
Dolores Irrigation Project	Under Construction	Montezuma and Dolores Counties, Colorado	
Animas-La Plata Project	Application Filed	La Plata County, Colorado San Juan County, New Mexico	

TABLE 1-2 (CONTINUED)

Project Description	Status	Location	Comments
Other Projects			
UMTRAP	In Operation	Grand Junction (Mesa County), Naturita (Montrose County), Slick Rock (Montrose County), and Durango (La Plata County) Colorado	The Cheney disposal site for contaminated tailings is located approximately 0.1 mile from MP 90.0 of the proposed and agency preferred routes.

Note: CIG - Colorado Interstate Gas Company
NWPL - Northwest Pipeline
EPNG - El Paso Natural Gas Pipeline
UMTRAP - Uranium Mill Tailings Remedial Action Program

TABLE 1-3

TransColorado Gas Transmission Project
Authorizing Actions

Agency	Jurisdiction	Grant, Permit, or License Required
Federal		
U.S. Department of the Interior		
Bureau of Land Management	Administration of public lands	ROW grant on Public and National Forest lands (Temporary Use Permits on BLM lands)
Fish and Wildlife Service	Protection of T&E species	Section 7 consultation
	Fish and Wildlife Coordination Act	Section 404 and Section 10 Permits
Advisory Council on Historic Preservation	Protection of cultural resources	Sec. 106 Compliance (36 CFR 800)
Bureau of Indian Affairs	Administration of Indian Lands	ROW grant (25 CFR 169)
Bureau of Reclamation	Canal Crossings and Reclamation Lands	ROW grant
National Park Service	Mesa Verde National Park water line	Utility permit
U.S. Department of Agriculture		
Forest Service	Administration of National Forest lands	ROW grant (issued by BLM) and Temporary Special Use and Road Permits issued by Forest Service
Soil Conservation Service	Protection of prime and unique farmlands	Clearance
Federal Energy Regulatory Commission	Interstate natural gas transportation facilities	Certificate of Public Convenience and Necessity
U.S. Army Corps of Engineers	River and wetland crossings	Section 404 Permits
U.S. Environmental Protection Agency	NEPA, Clean Air Act, and Clean Water Act compliance	Adequacy of EIS NPDES Permit (New Mexico)
Western Area Power Administration	Power Marketing	Conditions of approval

TABLE 1-3 (CONTINUED)

Agency	Jurisdiction	Grant, Permit, or License Required
U.S. Department of Transportation		
Department of Transportation	Crossings of interstate and state highways and other pipelines	Permit
States of Colorado and New Mexico		
Department of Local Affairs, Division of Planning	Administration of state lands	Consultation
Department of Transportation	Highway ROW crossing	Permit
State Historic Preservation Officer	Protection of cultural resources	Consultation
State Engineer	Appropriation of water	Consultation
Division of Wildlife	Administration of fish and wildlife program	ROW across CDOW-administered lands
Department of Health, Air Pollution and Water Quality Control Divisions	Air and water quality	Water quality certificates, air emission permits, hydrostatic discharge, and NPDES stormwater discharge permit.
Counties		
County Commissioners in Rio Blanco, Garfield, Mesa, Montrose, Delta, San Miguel, Dolores, La Plata, and Montezuma Counties (Colorado)	County zoning	Special use permits
County Highway Departments in Rio Blanco, Garfield, Mesa, Montrose, Delta, San Miguel, Dolores, La Plata, and Montezuma Counties (Colorado)	County roads	Special use permits
County Highway Department in San Juan County (New Mexico)	County Roads	Special use permits

sediments for contaminants at pipeline crossings in the Animas and La Plata rivers in New Mexico; 3) testing of hydrostatic test waters for contaminants prior to discharge; 4) developing measures to prevent contaminants from entering rivers in New Mexico in the event of a pipeline rupture; and 5) transplanting any Uinta Basin hookless cactus located within the ROW.

All of the USFWS recommendations have been included in this final EIS (see draft USFWS BO in Appendix E). Conservation measure number 4 will be developed by the USFWS and TransColorado in consultation with the COE following issuance of this final EIS. The agreed upon measures will be included in the BLM/USFS RODs.

Also completed following issuance of this final EIS will be field inventories for threatened and endangered plant and animal species. A final USFWS BO will be rendered based on the completed field inventories and the agreed upon measures to prevent pipeline rupture. A decision on the TransColorado project will not be made and no RODs or any subsequent ROW grant will be issued until the final BO is received from the USFWS. The final USFWS BO, any additional mitigation required by the USFWS, and any additional environmental analysis needed to disclose impacts not covered in this final EIS will be included in the RODs.

Section 106 Consultation Under the National Historic Preservation Act

Colorado and New Mexico SHPOs' preliminary concurrence letters and a letter from the ACHP have been received for cultural resources. These preliminary concurrence letters are based on incomplete field inventories of the final EIS agency preferred route. The SHPO and ACHP letters are included in Appendix F along with a programmatic agreement for cultural resources.

Field inventories for cultural resources will be completed following issuance of this final EIS. Once the Class III inventories are completed and the data are incorporated into a project-specific research design, a treatment plan for cultural resources will be prepared. The research design and treatment plan will be submitted for review and concurrence to the Colorado and New Mexico SHPOs, the ACHP, and the FERC. A decision on the TransColorado project will not be made and no RODs or any subsequent ROW grant will be issued until the final concurrence is received. Any additional mitigation, the letter of concurrence, and any additional environmental analysis needed to disclose impacts not covered in this final EIS will be included in the RODs. Implementation of the treatment plan will not begin until the FERC issues its Certificate of Public Convenience and Necessity for private lands and BLM issues the BLM/USFS ROW grant for Federal lands.

BLM and USFS Temporary Use Permits

As discussed above, the ROW grant issued to TransColorado would be for a permanent 50-foot ROW width. The ROW grant would include a temporary use permit authorizing disturbance to an additional 25 feet during construction. The staging area needed in the Gilman Gulch drainage would be authorized under the temporary use permit.

TransColorado would need to obtain additional permits to disturb lands outside the 50-foot permanent ROW and 25-feet temporary use permit area. On Federal lands, this would require the granting of an additional temporary use permit by the affected land manager. On private lands, this would require prior approval by the FERC. As the impact analysis in this final EIS is based upon disturbance to the 75-foot authorized area plus the identified compressor sites and the

Gilman Gulch staging area, additional environmental analysis for temporary use permits beyond the 75-foot width on Federal lands would be necessary prior to issuing any additional temporary use permits.

FERC Certificate of Public Convenience and Necessity

Following acceptance and adoption of this final EIS by FERC, the FERC will issue a final order approving or denying the requested FERC Certificate of Public Convenience and Necessity. If approved, the FERC certificate will be issued to TransColorado simultaneously with the final order. The FERC certificate will provide TransColorado with the power of eminent domain on state and private lands through the Federal courts.

The FERC staff would recommend to its commission that the measures listed in Table 2-14, environmental protection measures on private and state lands, be approved for inclusion in the FERC certificate. If approved, they would be attached to the certificate.

Corps of Engineers Section 404 Permits Under the Clean Water Act

Section 404 of the Clean Water Act establishes a permit program, administered by the Department of the Army, Corps of Engineers (COE), to regulate the discharge of dredge and fill materials into the waters of the United States, including their adjacent wetlands. Consequently, pipeline construction activities at stream and river crossings, and wetlands would need Section 404 authorization. As part of the authorization process, TransColorado would need to delineate jurisdictional wetlands (those defined and regulated under Section 404), and supply detailed plans of construction to the COE. Preliminary indications from the COE in Colorado (Sacramento District) are that most, if not all, construction activities would meet the requirements of Nationwide Permit 12 or 26, negating the need for individual Section 404 permits and additional NEPA analysis (see letter in Appendix C).

Existing cumulative impacts, from a variety of sources, are affecting the water quality, and stream channel and wetland morphology in the San Juan Basin of New Mexico. Consequently, the COE in New Mexico (Albuquerque District) is proposing a revocation of Nationwide Permit 12 and replacing it with a regional permit for pipeline crossings. If the regional permit is in effect prior to the proposed pipeline construction activities, the crossings of the La Plata, San Juan, and Animas Rivers in New Mexico may be authorized by the regional permit, provided all the necessary conditions are satisfied. If proposed construction activities do not comply with the regional permit or the regional permit is not subsequently approved, the pipeline crossings of the La Plata, San Juan, and Animas Rivers would require individual Section 404 permits, and additional NEPA analysis (see letter in Appendix C).

The Section 404 authorization process includes legislatively mandated review responsibilities by both the USFWS and the United States Environmental Protection Agency (EPA). This EIS does not preclude additional and separate evaluation pursuant to the Fish and Wildlife Coordination Act and the Clean Water Act.

EASEMENT ACQUISITION PROCESS

The easement, usually negotiated with the landowner, is the instrument used to convey ROW to the pipeline company. The easement gives the company the right to operate and maintain the pipeline in the permanent ROW and, in return,

compensates the landowner for the use of the land. The easement negotiations between the pipeline company and the landowner would include compensation for the loss of use during construction, loss of nonrenewable or other resources, and the restoration of unavoidable damage to property during construction.

If an easement cannot be negotiated with the landowner and the project has been certificated by the FERC, the pipeline company may use the right of eminent domain granted to it under Section 7(h) of the Natural Gas Act (NGA) of 1938 to obtain a ROW. The pipeline company would still be required to compensate the landowner for the ROW, as well as for any damages incurred during construction; however, the level of compensation would be determined by the court according to state laws. State laws set procedures for the use of eminent domain. Generally, the pipeline company would file in either state or Federal court for the right to take land by eminent domain. The level of compensation determined as a result of condemnation proceedings either could be the same as or less than the amount of money offered during earlier negotiations with the company.

RELATIONSHIP TO BLM AND FOREST SERVICE POLICIES, PLANS, AND PROGRAMS

Federal land management agencies are mandated by law to prepare land use plans for managing Federal lands under their jurisdiction. These laws also require Federal agencies to analyze the environmental impacts of implementing their land use plans. To comply with these laws, BLM prepares resource management plans (RMPs) and EISs for lands under its jurisdiction. The USFS prepares Forest Land and Resource Management Plans (forest plans) and EISs for lands under its jurisdiction.

According to BLM and USFS policy, all actions authorized subsequent to the plans (RMPs and forest plans) must conform with the approved land use plans. To be in conformance, an action must be specifically mentioned in the plan or be clearly consistent with the decisions of the plan. In addition, to be clearly consistent, an action must comply with: (1) all stipulations, constraints, standards, and guidelines listed in a plan, and (2) all stipulations developed specifically for the proposed project for the purpose of avoiding or reducing impacts on sensitive resources in the plan.

The BLM and USFS have reviewed the proposed TransColorado project to determine conformity with approved land use plans. Following are the findings of this review.

Bureau of Land Management

White River Resource Area (Colorado)

The White River Resource Area is managed under two land use plans--the White River Management Framework Plan (MFP) and the Piceance Basin RMP. The proposed TransColorado pipeline is consistent with these plans subject to: (1) a general stipulation in the Piceance Basin RMP to mitigate the losses of livestock range and firewood; (2) site-specific RMP stipulations, such as seasonal closures; and (3) other general measures needed to reduce or eliminate impacts to resources.

Grand Junction Resource Area (Colorado)

The Grand Junction Resource Area is managed under the Grand Junction RMP. The proposed

TransColorado pipeline is consistent with the Grand Junction RMP subject to: (1) site-specific stipulations to mitigate impacts in the Palisade watershed and on slopes greater than 40 percent, (2) site-specific RMP stipulations, such as seasonal closures, and (3) other general measures needed to reduce or eliminate impacts to resources.

In addition to the Grand Junction RMP, a cooperative management plan is being written for the west slopes of the Grand Mesa. The plan area, which includes the two watersheds, encompasses approximately 50 square miles of land owned or administered by the BLM, USFS, the City of Palisade, the City of Grand Junction, and other private landowners. The plan is being written cooperatively by the BLM, City of Grand Junction, and others, such as the USFS and the Colorado Division of Wildlife (CDOW). The proposed goals of the plan will be to protect the municipal watersheds, protect critical wildlife habitat, provide for public access, and reduce problems associated with public use, such as trash dumping, unsafe target shooting, and uncontrolled motorized use. The proposed TransColorado pipeline, as now designed, does not appear to conflict with the proposed management goals for the Grand Mesa.

Uncompahgre Basin Resource Area (Colorado)

The Uncompahgre Basin Resource Area is managed under the Uncompahgre Basin RMP and the San Juan/San Miguel RMP. The proposed TransColorado pipeline is consistent with both the Uncompahgre Basin RMP and the San Juan/San Miguel RMP subject to: (1) site-specific RMP stipulations, such as seasonal closures, and (2) other general measures needed to reduce or eliminate impacts to resources.

San Juan Resource Area (Colorado)

The San Juan Resource Area is managed under the San Juan/San Miguel RMP. The proposed TransColorado pipeline is consistent with the San Juan RMP subject to: (1) site-specific RMP stipulations, such as seasonal closures, and (2) other general measures needed to reduce or eliminate impacts to resources.

Farmington Resource Area (New Mexico)

The Farmington Resource Area in New Mexico is managed under the Farmington RMP. The Farmington Resource Area has stated that the proposed TransColorado pipeline is consistent with the Farmington RMP subject to: (1) site-specific RMP stipulations, such as seasonal closures, and (2) other general measures needed to reduce or eliminate impacts to resources.

U.S. Forest Service

Uncompahgre and San Juan National Forests

The Ouray and Norwood Ranger Districts (Uncompahgre National Forest) are managed under the 1991 amended Grand Mesa, Uncompahgre, and Gunnison National forest plan. The Dolores and Mancos Ranger Districts are managed under the 1983 San Juan National Forest Plan. Both forest plans require that utility corridors be compatible with the goals of the management areas through which they pass. Any activity within a designated utility corridor must be consistent with the appropriate standards and guidelines in the forest plan. Both forest plans also require that any major pipeline (10 inches or larger) be placed in a designated utility corridor.

Portions of the TransColorado proposed and agency preferred routes and route variations (see Appendix B) on both forests are not within a designated utility corridor. Before any of these routes could be used for this project, a forest plan amendment would be needed to designate them as utility corridors (see Appendix A). TransColorado route segments not designated as utility corridors are described in detail in Appendix A.

The Proposed Action and Agency Preferred Alternative are consistent with both forest plans subject to the following: (1) site-specific restrictions, such as area and seasonal closures; (2) use of the general environmental protection measures; and (3) amending the appropriate forest plan to include new utility corridors.

RELATIONSHIP TO INDIAN TRIBAL POLICIES AND PLANS

The Ute Mountain Ute and Navajo Reservations, located in southern Colorado and northern New Mexico, are crossed by the San Juan Valley route variation (see Appendix B). The Southern Ute reservation located in southern Colorado is crossed by the Animas Valley route variation (Appendix B). The final EIS proposed route/agency preferred route would follow the La Plata River drainage through mostly private land. At approximately MP 256, the Southern Utes own a strip of land .25 miles wide that connects with reservation on each side of the La Plata River drainage (see maps in map pocket).

Currently, these three reservations do not zone or classify land for specified land use. There are no existing land use or comprehensive plans. Development projects are subject to review by the individual Tribal councils. Construction inspections, threatened and endangered species surveys, and cultural surveys are typically required.

Procedures for granting pipeline ROWs on reservation land begin with simultaneous application submittals to the Bureau of Indian Affairs (BIA) and the respective Tribal councils. Reviews and inspections are conducted within the framework of the Tribe. Typical reviews include cultural, geological, and economic assessments. Simultaneously, a prospective applicant may request "access" or "crossing" permits to conduct land, threatened and endangered species, and cultural resources surveys. The Tribal council is the decision-making body for the ROW permits. The Tribal council may enter into negotiations with the pipeline ROW applicant. There are no adopted standards or requirements for such negotiations. If the Tribal council approves the ROW, this approval is communicated to the BIA and a ROW is granted pursuant to the conditions imposed by the Tribal council. The Tribal council has the right to approve or disapprove of the granting of any ROW per the Act of February 5, 1948, 62 Stat 17 (25 USCA 323-328). There are certain standard stipulations contained in the Act.

Trust Roles and Responsibilities

The trust responsibility is the term used to characterize the legal relationship between the United States and the various Indian tribes. Its origins are in the Federal government's assertion that it has the power to control the sale of Indian land. That power was assented to prior to the independence of the United States in the Royal Proclamation of 1763 and after independence in the Indian Trade and Intercourse Act, which was passed by the first Congress in 1790 (25 USCA 177). The courts have held that with the Federal government's authority to manage that property comes the responsibility to do it with care and prudence and for the benefits of the Indian owners (United States v. Mason, 412 U.S.

391, 398, 1973). In addition to these obligations, the United States also has a more general trust relationship with the Indian people (United States v. Mitchell, 463 U.S. 206, 225, 1983 [Mitchell II]). That relationship creates an overriding duty of the Federal government to deal fairly with all Indians (Morton v. Ruiz, 415 U.S. 199, 236, 1974). The trust responsibility applies not only to the Department of the Interior, but to all other agencies of the Federal government as well (Covelo Indian Community v. FERC, 895 F.2d 581, 9th Cir. 1989. FERC); (Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation v. Board of Oil and Gas Conservation, 792 F.2d 782, 794, 9th Cir. 1986. BLM); (Nancy v. EPA, 645 F.2d 701, 710-711, 9th Cir. 1981. EPA); (Cheyenne-Arapahoe Tribes of Indians of Oklahoma v. United States, 512 F.2d 1390, 1395 n.8 Ct. Cl. 1975. Treasury and OMB).

The trust responsibility refers to actions on Indian lands. The proposed route and the agency preferred route both cross Indian lands. The Animas Valley and the San Juan Valley Variations (Appendix B) also cross Indian lands.

RELATIONSHIP TO NON-FEDERAL POLICIES, PLANS, AND PROGRAMS

Table 1-4 provides a summary of special use and utility permit requirements for the counties crossed by the proposed route.

SCOPING

Scoping Meetings

The scoping process for the TransColorado natural gas pipeline began in December 1989 when TransColorado filed an application and a proposed plan of development (POD) with the BLM Montrose District Office and the USFS, and the BLM/USFS began their review of the project. The POD was later revised and re-submitted on March 15, 1991.

A notice of intent (NOI) to prepare an EIS on the project was published in the Federal Register on March 15, 1990. Following publication of the NOI, the BLM and USFS held both interagency and public meetings. The interagency meetings were held in Montrose, Colorado, on June 12 and 13, 1990. Attending were representatives from all the affected BLM resource areas (White River, Grand Junction, Uncompahgre Basin, San Juan, and Farmington); USFS districts (Ouray, Norwood, Dolores, Mancos); other affected Federal agencies, USFWS, Western Area Power Administration (WAPA), Bureau of Reclamation (BuRec), Bureau of Indian Affairs (BIA), COE; Colorado state agencies (CDOW, Division of Parks); and the Southern Ute Tribe. The results of the interagency meeting included a preliminary identification of issues to be treated in the draft EIS and some suggestions for route variations.

The major agency resource concerns included: use of existing corridors; implementation of adequate soil protection measures after disturbance; avoidance and/or stabilization of slopes affected by landslides; adequate protection of sensitive plant and animal species; adequacy of weed control measures; protection of wetlands; protection of streams; potential for conflicts with utilities (transmission lines, other pipelines); visual concerns on the Grand Mesa and at major river and road crossings; and the cumulative impact of the TransColorado pipeline in relation to past and proposed oil and gas projects in the region.

The major routing concerns included the need for a route variation on the side of the Grand Mesa that would reduce the potential visual impacts from a new ROW in a previously undisturbed

TABLE 1-4

Transcolorado Gas Transmission Project
County Land Use Plans and Permit Requirements

Agency	Land Use or Master Plan		Specific Energy Development Policies	Specific Utility Corridor Policies	Zoning	Public Hearing	Bond	Permits or Requirements for Pipeline Construction
	Yes	No						
Colorado Counties								
Delta County	X		X	X		X	X	- Permit to develop in a designated area of state interest (if applicable). - Permit to construct a facility of a public utility. - Utility permit. - County road access permit.
Dolores County		X	X	X		X	X	- ROW permit. - County permit to install utility-type devices in county roadways. - Road-cut permit. - County road access permit.
Garfield County		X			X	X		- Special use permit. - Fiscal impact analysis. - Building permit. - Road use permit. - County road access permit.
La Plata County	X		X	X		X		- Class II development permit. - Building permit. - ROW permit. - County road access permit.
Mesa County	X		X	X	X	X		- Conditional use permit. - Road use permit. - Building permit. - County road access permit.

TABLE 1-4 (CONTINUED)

Agency	Land Use or Master Plan		Specific Energy Development Policies	Specific Utility Corridor Policies	Zoning	Public Hearing	Bond	Permits or Requirements for Pipeline Construction
	Yes	No						
Montezuma County	X			X		X		- Require pipeline companies to work with Board of County Commissioners in order to site pipeline facilities. - Permit to locate pipeline. - No utility siting permitted in the Summit Ridge Mancos Valley corridor (County Resolution 86-24).[1] - County road access permit.
Montrose County	X				X	X		- Development permit. - Road cut permit. - County road access permit.
Rio Blanco County	X		X	X	X	X		- Special use permit.
San Miguel County	X			X	X	X	X	- Special use permit. - Building permit. - County road access permit.
New Mexico Counties								
San Juan County		X						- Road cut permit, prefer not to share county ROW with pipeline.

[1] The Montezuma County resolution reads: Whereas: Summit Ridge and the Mancos Valley are affected by the two electrical transmission lines and three pipelines for the transportation of hydrocarbons and carbon dioxide and;

Whereas: The rights-of-way for these public utilities fall predominately on the private land and;

Whereas: Local landowners have objected to any additional power lines or pipelines.

Now Therefore be it Resolved: That this corridor is closed and any additional power line or pipeline companies that wish to cross Montezuma County must choose an alternate route.

Source: FERC Staff Data Request No. 31 - TransColorado Response November 12, 1990, T.R. Blackham.
Personal Telephone Communication: Linda Tompson, San Juan County, NM 1990; Roy Flack, San Juan County, NM 1990; Charlie Knox, San Miguel, CO, NM 1990. Delta County, CO 1990; Dolores County, CO; Garfield County, CO 1979; La Plata County, CO 1990; Mesa County, CO 1988, 1990; Montezuma County, CO 1990; Montrose County, CO 1983, 1988; Rio Blanco County, CO 1976, 1983

area; the need for a route variation in the Ryman Creek area in Dolores County where landslide deposits and low rehabilitation potential soils are present; the need for an additional route variation to the segment of the proposed route between the town of Hesperus and the Ignacio natural gas treatment plant where extensive conflicts with residential areas, Southern Ute Tribal lands, and the proposed Ridges Basin Reservoir (Animas-La Plata Project) were identified; the need to confine the width of the existing large pipeline corridor between the Ignacio Plant in La Plata County and the pipeline terminus at the Blanco Plant, near Bloomfield, New Mexico; and the need to identify additional route variations to reduce forestry impacts on portions of the San Juan National Forest north of Dolores.

Two series of public scoping meetings were conducted. The first meetings were conducted in Grand Junction on July 24; Montrose, July 25; Norwood, July 26; Ignacio, August 6; Durango, August 7; Mancos, August 8; and Dolores, August 9, 1990. Meeting participants were provided with a scoping document that summarized the purpose and need, location of the project, and the preliminary list of issues identified by the public agency scoping meeting participants. Detailed route maps were provided for public review. The public then provided oral and written comments on the pipeline proposal.

During the first public scoping meetings, the public expressed a variety of concerns over the proposed location of the pipeline. In Mesa County, numerous comments were received regarding potential visual effects of TransColorado's proposed route on the side of Grand Mesa, and objections from the City of Palisade concerning potential impacts on the Palisade municipal watershed. The City of Grand Junction expressed concerns about the crossings of their domestic water pipelines. Public concern in Montezuma and La Plata Counties focused on routes in the Mancos Valley, the Hesperus area, and the Wildcat Canyon area where the pipeline would cross private land already encumbered with several utility lines. In addition, the Southern Ute Tribe expressed concern over pipeline routing across Tribal lands and the Department of the Interior's "trust responsibility" to the Tribe. Other frequent concerns included: the disproportionate use of private lands relative to available public lands, inadequate reclamation of previous pipeline projects, routing the pipeline in existing corridors containing multiple pipelines and resulting in cumulative land use constraints to landowners, and the lack of alternatives to the proposed route from the vicinity of Hesperus to the gas delivery point at the Blanco gas processing plant near Bloomfield, New Mexico.

The second set of meetings was held in Mancos, Colorado, and Farmington, New Mexico, on October 16 and 17, 1990, respectively. These meetings were held to solicit comments on three new route variations developed in response to comments received at the first series of meetings.

The Mancos Valley is an extremely sensitive area from the standpoint of the residents' perspective on the utility industry. There is widespread mistrust and concern because of past performance by other pipeline companies in land rehabilitation efforts. There is a strong positive feeling of private property rights and negative feelings toward the right of condemnation by the utility industry. In addition, the majority of Mancos Valley citizens who live along the corridor do not want their property crossed by any future pipelines or other utilities. In response to citizen concerns, the Montezuma County Commissioners passed a resolution in 1986 closing the Mancos Valley Corridor to future pipeline construction.

A summary of the comments received as part of the public scoping process is presented in Table 1-5. Comments were divided into six general groups:

- Natural Resources. These concerns related to management and maintenance of natural resources: soil, vegetation, wildlife, air quality, and water quality.

- Human Resources/Land Use. These concerns related to the relationships between the pipeline construction and operation requirements and existing land uses, compensation for land damages, changes in landscape visual character, noise, effects on cultural resources, and transportation requirements.

- Routing. These concerns related to expressed preferences for one route variation over another, and suggestions for alternative variations.

- Purpose and Need. These concerns related to TransColorado's stated purpose and need for the project.

- Draft EIS process. These concerns related to the responsibilities of Federal, state, and local agencies for reviewing and selecting a preferred alternative for the pipeline.

- Construction and Reclamation. These concerns related to the procedures used to construct the pipeline and reclaim the ROW on private and public lands.

As seen in Table 1-5, the predominant concerns from all the public meetings centered on land use concerns, and comments and recommendations on the suitability of the TransColorado proposed route and route variations.

ISSUES

Issues Addressed in this Final EIS

Through scoping, it was determined that 30 resources or resource activities had the potential to be affected by construction, operation, and maintenance of the TransColorado pipeline. The impacts on these resources were determined to be issues that would be addressed in this final EIS. Of these resources, it was subsequently determined that 23 would be affected and 7 would not be affected by the TransColorado pipeline project.

Following is a listing of resources that would be affected by the TransColorado pipeline. Impacts to these resources are analyzed in detail in Chapter 4 of this final EIS.

- Impacts to Air Quality (including noise)
- Impacts to Topography
- Impacts to Leasable Minerals
- Impacts to Mineral Materials
- Impacts to Surface Water Quality and Quantity
- Impacts to Municipal Water Supplies
- Impacts to Wetlands
- Impacts to Soils
- Impacts to Prime Farmland and Farmland of Statewide Importance
- Impacts to Forestry
- Impacts to Livestock Grazing
- Impacts to Wildlife
- Impacts to Fisheries
- Impacts to Threatened and Endangered Species
- Impacts to Cultural Resources
- Impacts to Paleontological Resources
- Impacts to Native American Religious Concerns
- Impacts to Visual Resources
- Impacts to Areas of Critical Environmental Concern

TABLE 1-5

TransColorado Gas Transmission Project
TransColorado Public Scoping[1]

Location	Participants	Comments[2]	Natural Resources	Human Resources/ Land Use	Routing	Purpose/ Need	EIS Process	Construction and Reclamation
Dolores	24	32	9 (28%)	17 (53%)	4 (13%)	1 (3%)		1 (3%)
Durango	47	56	19 (34%)	18 (32%)	15 (27%)		1 (2%)	3 (5%)
Grand Junction	60	119	42 (36%)	28 (23%)	35 (29%)	6 (5%)	2 (2%)	6 (5%)
Ignacio	17	38	12 (32%)	17 (45%)	6 (15%)	2 (5%)	1 (3%)	
Mancos	86	142	19 (13%)	55 (39%)	53 (37%)	4 (3%)	8 (6%)	3 (2%)
Montrose	28	76	16 (21%)	30 (39%)	15 (20%)	7 (9%)	8 (11%)	
Norwood	13	17	5 (29%)	6 (35%)	3 (18%)			3 (18%)
Farmington	18	10	3 (30%)	2 (20%)	4 (40%)	1 (10%)		
		490	125 (26%)	173 (35%)	135 (28%)	21 (4%)	20 (4%)	16 (3%)

[1]Summary from three meetings in July, four meetings in August, and two meetings in October.

[2]Includes both verbal comments at the meeting and written comments received later.

- Impacts to Transportation
- Impacts to Solid Waste Facilities
- Impacts to the Socioeconomic Conditions including Local Residents and Land Owners
- Impacts to Public Safety

Issues Considered but Eliminated from Detailed Analysis

Impacts to Geology

No unique or unusual geologic features designated for protection by Federal and state agencies would be crossed by the proposed route, agency preferred route, or route variations. The TransColorado proposed and agency preferred route would cross a portion of a geologic feature called Rico Dome and Dolores River Valley that was included in a National Park Service inventory of areas that could potentially be designated national natural landmarks. The Rico Dome, an intrusive igneous mass, and the associated Dolores River Valley occupy an area approximately 40 miles long by 1 to 5 miles wide. The National Park Service has no current plans to designate this feature as a natural landmark, and no regulations or requirements for mitigation of surface disturbance within these undesignated areas (Salazar 1991). Because of the relatively small surface disturbance resulting from pipeline installation across the Dolores River Valley and lack of specific national natural landmark designation plans by the National Park Service, impacts to geology are not issues for this final EIS.

Impacts to Floodplains

Under floodplain management guidelines for implementing Executive Order (EO) 11988, all Federal agencies are required "... to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development when ever there is a practicable alternative..." Further, "if the base floodplain cannot be avoided adjust to it in order to: (1) reduce the hazard and the risk of flood loss; (2) minimize the impact of floods on human safety health and welfare; and (3) restore and preserve the natural and beneficial floodplain values."

The proposed route and the agency preferred route for the TransColorado pipeline would each cross five major rivers (Colorado, Gunnison, San Miguel, Dolores, and Animas). Five major streams (Piceance Creek, Roan Creek, Plateau Creek, West Mancos River, Middle Mancos River) would be crossed by the proposed route and by the agency preferred route. Appendix C, Tables C-1 and C-2, list the rivers, streams, and wetlands that would be crossed by the proposed route and agency referred route. The proposed TransColorado pipeline would not modify or alter these floodplains because TransColorado has committed to environmental protection measures, such as: crossing all streams perpendicular to the channel, locating major staging areas outside the 100-year floodplain, burying the pipeline below the maximum estimated scour depth of a 100-year flood, and locating no aboveground facilities within 100-year floodplains (see the Chapter 2 Environmental Protection Measures section and Tables 2-12 and 2-14). Based on these commitments, impacts to floodplains are not issues for this final EIS.

Impacts to Locatable Minerals

Under Federal mining laws, existing locatable mineral development rights take precedence over surface rights on Federal lands. As a consequence, proposed development of existing mining claims for locatable minerals would require pipeline relocation. And, by the same token, construction of the pipeline would not preclude the development of locatable minerals (e.g., precious metals).

Impacts to Groundwater

Environmental protection measures and stipulations included in this final EIS require the inventory, protection, and damage compensation for groundwater supply sources (wells and springs). Surface water relationships to groundwater supplies have been addressed under the topic of Municipal Water Supplies. Based on these commitments and project characteristics, impacts to groundwater are not issues for this final EIS.

Impacts to Wild Horses

Construction of the pipeline would decrease forage from less than 1 percent of the available Spring Creek Basin wild horse range in San Miguel and Dolores Counties for the short term (1 to 3 years). TransColorado has committed to providing cuts across open trench sections to ensure freedom of wild horse movement. No impacts to wild horse populations are expected, and, therefore, impacts to wild horses are not issues for this final EIS.

Impacts to Wilderness

No designated wilderness or wilderness study areas (WSA) would be crossed by the proposed route, agency preferred route, or any of the route variations. The proposed route would pass within 0.5 mile of the McKenna Peak WSA (recommended as nonsuitable for wilderness) in Dolores County; however, this pipeline segment would parallel an existing road and would not contribute a new human disturbance element to the landscape. The proposed route is also adjacent to the Roubideau Canyon area, which has been proposed for wilderness status through legislation submitted by Congressman Campbell. The pipeline would closely parallel Transfer Road in this area and would not impact the wilderness proposal unless the proposed wilderness boundary is changed to include the road area, which is not likely.

Impacts to Recreation

No developed recreational facilities would be crossed by the proposed route, and agency preferred route, or any of the route variations. An environmental protection measure incorporated into the project requires TransColorado to provide continual access to BLM and National Forest campgrounds and roads used for dispersed recreation. The visual impact of recreationists observing a new corridor in dispersed recreation areas is analyzed in the Visual Resources section.

Issues Outside the Scope of this Final EIS

Certain issues raised during the public scoping were considered by the BLM to be not significant or not appropriate for this final EIS. As a consequence, these issues were not carried through impact analysis in the final EIS. The Council on Environmental Quality (CEQ) regulations direct the lead agency to review and eliminate from detailed study those issues that are not significant. The following impact topics and issues have been eliminated for the reasons noted:

Cumulative Effects of Coalbed Methane Development

A number of comments were received concerning the need to analyze the effects of Colorado and New Mexico coalbed methane development since initiation of the Federal program in 1980. The permitting process for coalbed methane production is being conducted independently by the responsible Federal agencies. The TransColorado Gas Supply Plan, based on a survey of suppliers, indicates that sufficient gas is available from both conventional and existing

coalbed methane wells to supply the pipeline without requiring immediate drilling. Such an analysis is outside the scope of this final EIS.

Fairness of Eminent Domain

A number of comments concerned the need to analyze the fairness of the eminent domain laws with regard to their application for condemnation of private lands for utility purposes. The following section explains the responsibilities of the FERC and the BLM with respect to this issue.

FERC: When the U.S. Congress passed the Natural Gas Act (NGA) of 1938, it gave companies the authority of eminent domain. Section 7(h) of the NGA grants the holder of a Certificate of Public Convenience and Necessity the right to eminent domain that may be exercised when the holder cannot acquire by contract, or reach agreement with the owner as to the amount of compensation to be paid, the necessary property and ROW to construct, create, and maintain certificated facilities.

Under Section 7 of the NGA, the FERC is responsible for determining that the interstate natural gas transportation facilities are in the public interest. If the FERC determines that there is or will be a need for a proposed service, it will issue a Certificate of Public Convenience and Necessity authorizing the construction and operation of the proposed project. Environmental impacts are also an important and integral part of the overall determination.

As stated in the Purpose and Need section in Chapter 1 of the EIS, the FERC has already made a preliminary determination, based on the non-environmental issues, that certificate authorization of the TransColorado project would be in the public convenience and necessity. The FERC is acting as a cooperating agency in this environmental analysis process and plans to adopt the analysis contained in this final EIS for its evaluation of the environmental issues. The Certificate would be issued if, in accordance with Section 7(c) of the NGA and NEPA, the FERC determines that the proposed TransColorado facilities continue to be required by the public convenience and necessity.

BLM: The Fifth Amendment of the United States Constitution provides that private property shall not be taken for public use without just compensation. Government and its agents exercise the power of eminent domain to acquire private property for public use and to pay just compensation for that property. Governmental actions that do not formally invoke the condemnation power may risk a "taking." A "taking" is the use or the regulation of private land that effectively denies economically viable use to its owner, or has the effect of or results in a permanent or temporary physical occupation, invasion, or deprivation without just compensation.

The purpose of EO 12630, Government Actions and Interference with Constitutionally Protected Property Rights, is to ensure that Federal agencies avoid the inadvertent taking of private property rights. It requires the evaluation of administrative, regulatory, and legislative actions that could result in a taking of private property rights and require payment of just compensation under the Fifth Amendment to the Constitution.

The proposed BLM action to grant this ROW across public lands is not within the scope of EO12630 because it does not affect any private lands. The requirements of EO12630, therefore, are not applicable to the TransColorado pipeline proposal.

To the extent that rights on private lands are necessary to complete the pipeline route, any financial responsibility for the acquisition of those rights is the sole and exclusive responsibility of the private proponent. There can be no

inadvertent Fifth Amendment taking by the Federal government because the United States is not acquiring any interest in the ROW.

In summary, the fairness of the Federal power of eminent domain has been determined by the judiciary branch of the United States Federal government. An EIS is an inappropriate forum to further debate the fairness of this power.

Compensation to Private Land Owners

A number of comments concerned the need to analyze the easement acquisition process on private lands and the basis for compensation between the pipeline company and the private landowner. Such an analysis is outside the scope of this final EIS. The final EIS addresses issues concerning land use constraints on private lands resulting from installation of pipelines and describes procedures and conditions for maintaining environmental quality on both public and private lands (see Chapter 2). The easement acquisition process has been summarized in the beginning of this chapter.

Air Quality in Natural Gas Market Areas

A number of comments on the draft EIS concerned the need to analyze alternative methods to reduce air pollution in market areas. The market for natural gas has increased for several reasons, including fuel-switching to reduce air pollutant emissions. The purpose of this EIS is to analyze potential impacts due to the proposed TransColorado Gas Transmission Project, not to analyze alternative air pollution control strategies. Such an analysis is outside the scope of this EIS.

ROUTE SELECTION PROCESS

Numerous routes have been studied in developing a TransColorado proposed and an agency preferred route. The route selection process is described below.

Routes Evaluated Prior to Submitting ROW Application

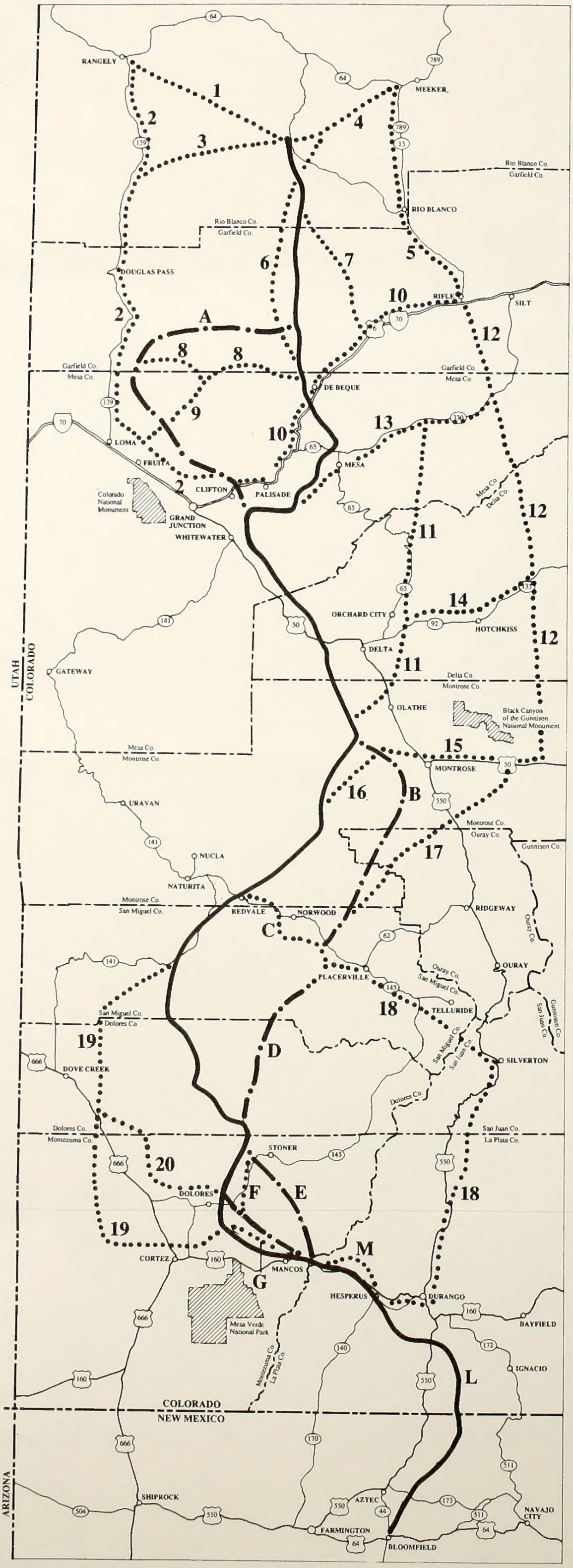
Prior to filing the right-of-way (ROW) application with BLM, TransColorado developed a number of route alternatives based on a variety of criteria such as project objectives, gas receipt and delivery points, environmental considerations, existing land uses, locations of existing utility corridors, and consideration of engineering design, construction, and operational constraints (TransColorado 1990). These routes are shown on Figure 1-5. From these routes, TransColorado identified a proposed route and several route variations that could be used in lieu of corresponding sections of the proposed route. TransColorado also eliminated from further consideration 20 routes for reasons listed in Table 1-6.

Routes Evaluated During Scoping

Subsequent to receiving the TransColorado application and prior to issuing the draft EIS, the BLM and other cooperating agencies presented the TransColorado proposed route and route variations for public review and comment (see Scoping, Chapter 1). In response to public concerns, Tribal opposition, and Montezuma County's position of opposing pipelines in the existing corridors, the BLM instructed TransColorado to investigate the constructibility of three new route variations between the Mancos

ROUTES DEVELOPED PRIOR TO ROW APPLICATION

FIGURE 1-5



North 0 4 8 16 miles

Proposed Route

Routes Eliminated from Further Analysis

Routes Recommended for Further Analysis

TRANSCOLORADO GAS TRANSMISSION PROJECT

Table 1-6

TransColorado Gas Transmission Project
Routes Eliminated Prior to Submitting ROW Application

Route Variation	Rationale for Elimination
1	Extra length, steep sidehills
2	Extra length, cultural impacts (Canyon Pintado)
3	Extra length, steep sidehills
4	Extra length, steep sidehills
5	Extra length, corridor is full
6	Does not follow drainages, visual impacts
7	Extra length, interference with Unocal Oil Shale project
8	Large landslide areas
9	Narrow, steep canyons, rock walls
10	Several river crossings, lack of construction space, sheer rock walls
11	Agricultural, recreational, and visual impacts on Grand Mesa
12	Agricultural, recreational, and visual impacts on Grand Mesa
13	Agricultural, residential, visual impacts
14	Agricultural, residential, visual impacts
15	Agricultural, residential, visual impacts
16	Steep canyons, visual impacts
17	Agricultural, residential, visual impacts
18	Agricultural, residential, visual impacts
19	Agricultural, residential, visual impacts, mountainous terrain
20	Agricultural, residential, visual impacts

Valley in Montezuma County and the pipeline terminus near the Blanco Plant, Bloomfield, New Mexico. TransColorado also defined a route variation to a portion of the Grand Mesa segment to reduce potential visual effects. Another route variation was developed to avoid landslide areas and unstable soils in the Ryman Creek area. Environmental concerns about the proposed route between Hesperus and Bloomfield led to the development of two route variations in response to these concerns. Figure 1-6 shows the results of the scoping process.

Routes Presented in the Draft EIS

In preparation of the draft EIS, an interdisciplinary BLM/USFS team evaluated the route variations proposed by TransColorado and those developed through scoping to select an agency preferred route. During this process, a number of routes presented at public scoping meetings were eliminated from further analysis because they were found to: (1) lack sufficient benefits relative to the proposed route to warrant analysis; (2) result in unacceptable environmental impacts; and (3) not be constructible. Figure 1-7 shows the agency preferred route, the TransColorado proposed route, and the route variations that were presented in the draft EIS. Table 1-7 lists the rationale used in refining routes for the draft EIS.

Routes Presented in the Final EIS

Following publication of the draft EIS, the Federal agencies met to reevaluate the routes presented in the draft EIS based on public comment and to identify the agency preferred route for presentation in this final EIS. The agency preferred route in the Norwood area and the Mancos Valley area changed as a result of this meeting. Figure 1-8 shows the routing changes. The following general criteria were used in determining the agency preferred route:

- The sensitivity and quality of natural resources potentially affected by construction and operation of the pipeline.
- The ability to control environmental impacts over the short- and long-term.
- The potential effects on the social and economic well being of private landowners, as well as citizens who use public lands for grazing, hunting, fishing, and other recreational activities.
- The public comments received during the NEPA process, including public scoping and comments on the draft EIS.

The criteria were applied site-specifically along the entire agency preferred route. The relative weighing of the criteria varied from place to place depending upon the issues, but the overall objective was to provide a constructible pipeline route that would result in the least amount of human and natural resource impacts.

Following is a site-specific route discussion. The discussion has been divided into a series of segments based on issues along the route. It should be noted, that the decision of whether or not to authorize the proposed pipeline and, if authorized, the decision regarding the final routing has not yet been made. These decisions will be included in the BLM and USFS RODs issued following publication of this final EIS.

Piceance Creek to Gilman Gulch (Milepost [MP] 0 to 32.0)

This segment is routed almost entirely within an existing pipeline corridor. The location of this route segment is largely dictated by interconnection requirements of partner systems. No major resource conflicts were identified from public comments, with the exception of indeterminate future conflicts with oil shale

TABLE 1-7

TransColorado Gas Transmission Project
Pipeline Routes Developed or Eliminated in Preparation of the Draft EIS

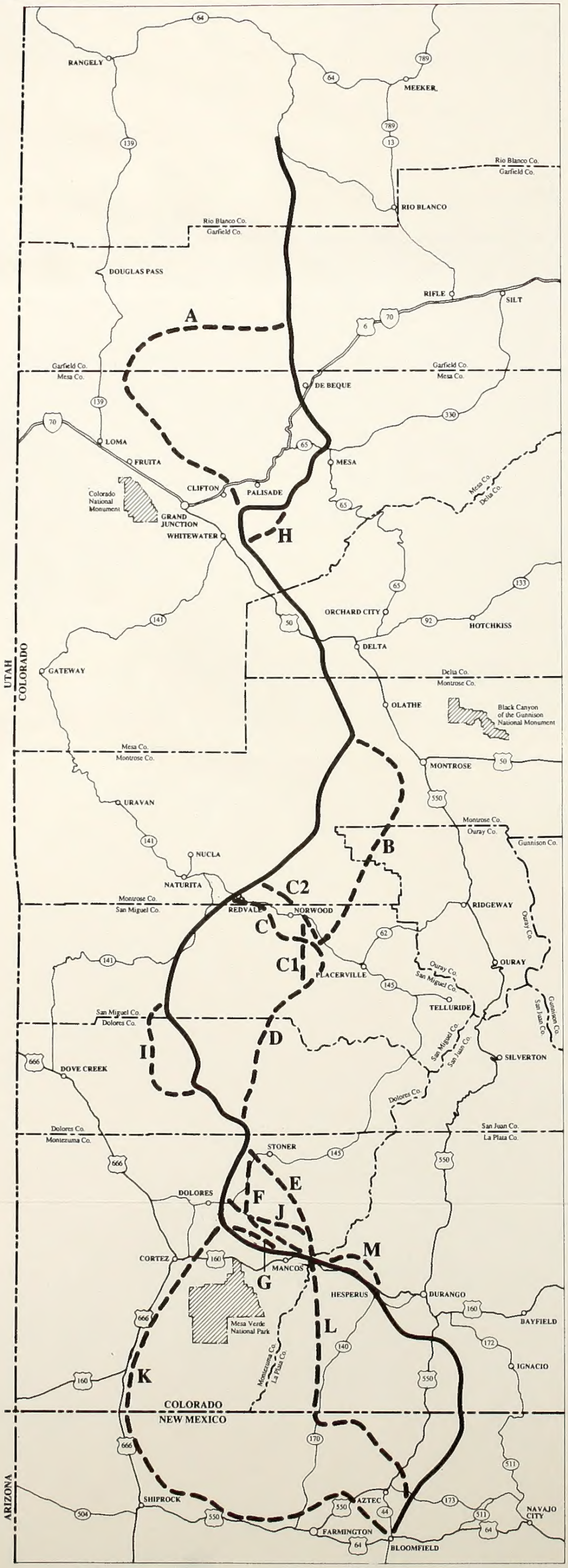
Route	Rationale for Consideration	Rationale for Elimination	EIS Treatment
B		Visual and forestry concerns on Uncompahgre National Forest; San Miguel River crossing would be within proposed BLM Area of Critical Environmental Concern	Eliminated from analysis
C		Multiple steep canyons crossing compared to C_1 and C_2 routes; longer than routes C_1 and C_2	Eliminated from analysis
C_1 and C_2	Combination of these segments would be shorter, fewer steep canyon crossings than Route C		Incorporated into draft EIS agency preferred route
F		Poor crossing of Dolores River, forestry and visual concerns, new utility corridor in area with little existing access	Eliminated from analysis
G		Follows powerlines, potentially greater ROW surface area requirements compared to other Mancos Valley routes	Eliminated from analysis
H	Less visually sensitive descent from Grand Mesa		Incorporated into draft EIS proposed route
I	Avoids incised drainages and landslide debris areas associated with the proposed route on the Ryman Creek drainage	Extensive rock, soil stability, salinity, and rehabilitation problems	Eliminated from analysis
J	Avoids pipeline utility corridor in the Mancos Valley		Incorporated into draft EIS proposed route

TABLE 1-7 (Continued)

Route	Rationale for Consideration	Rationale for Elimination	EIS Treatment
K	Avoids Mancos Valley, and conflicts with private and Tribal lands in the Durango-Ignacio areas		Incorporated into draft EIS as a route variation
L	Avoids conflicts with private and Tribal lands in the Durango-Ignacio areas; follows existing pipeline corridor		Incorporated into draft EIS proposed and agency preferred route
M		Follows powerline; potentially greater ROW surface requirements compared to nearby route segments	Eliminated from analysis

ROUTES PRESENTED/ DEVELOPED DURING SCOPING

FIGURE 1-6



North 0 4 8 16 miles

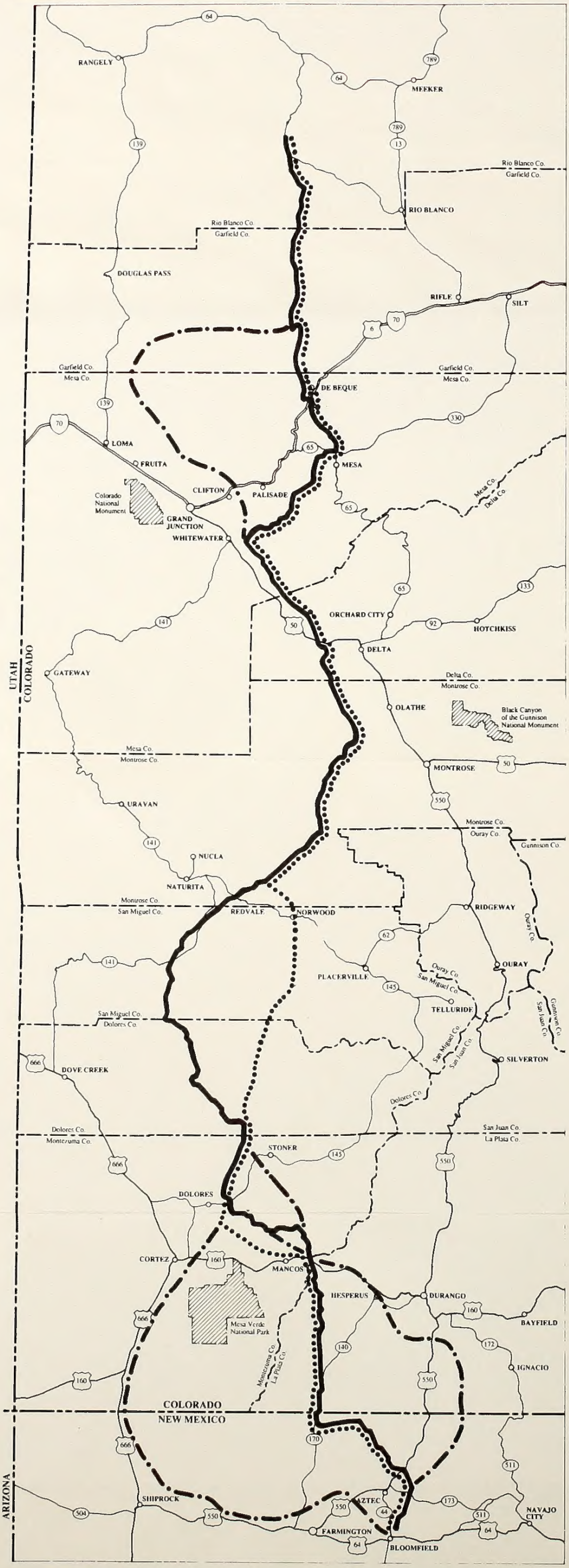
Proposed Route

Route Variations

TRANSCOLORADO GAS TRANSMISSION PROJECT

ROUTES ANALYZED IN THE DRAFT EIS

FIGURE 1-7



North 0 4 8 16 miles

Proposed Route

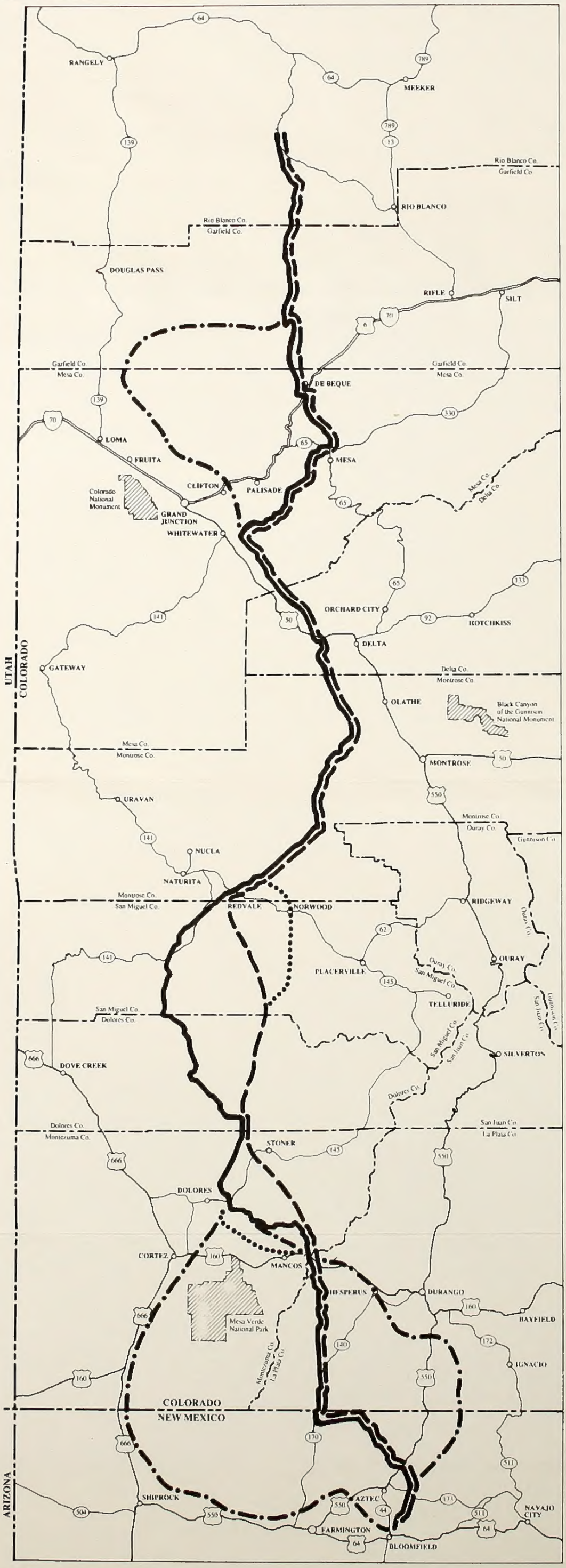
Draft EIS Agency Preferred Route

Route Variations

TRANSCOLORADO GAS TRANSMISSION PROJECT

ROUTES ANALYZED IN THE FINAL EIS

FIGURE 1-8



North 0 4 8 16 miles

- Proposed Route
- Final EIS Agency Preferred Route
- Draft EIS Agency Preferred Route
- Route Variations

TRANSCOLORADO GAS TRANSMISSION PROJECT

development. No route variations were evaluated because none offered potential advantages over the proposed route in terms of length, or reductions in resource impacts.

Gilman Gulch to Whitewater (MP 32.0 to 85.5)

The location of this segment is largely dictated by interconnection requirements with partner systems and the problem of avoiding the DeBeque Canyon of the Colorado River, a major topographic obstacle. It was determined early in the assessment process that the pipeline could not follow the U.S. I-70 or railroad ROWs because of inadequate space in narrow canyon sections. The Grand Valley variation was not recommended as the agency preferred route because of its greater length, requirements for crossing irrigated agricultural and residential areas in the Grand Valley, high visual impacts on the Roan Plateau cliffs, and very steep slope construction requirements at the head of Kimball Gulch and Big Salt Wash.

The agency preferred route crosses the northwest shoulder of Grand Mesa. Many public comments were received about the suitability of the Grand Mesa portion of the route with regard to visual and watershed impacts. The BLM has considered the following in reaching its decision to recommend the Grand Mesa route:

1. TransColorado has worked directly with the City of Palisade to find a route that will pose the least risk to Palisade water supply springs and pipelines. The agency preferred route was relocated downslope from the Cabin Creek Reservoir to avoid this primary city water supply source.

2. In response to Grand Junction's concerns about effects on its water supply watersheds, the BLM has incorporated additional detail on steep slope construction methods, and crossings of water supply pipelines. The BLM believes that protection measures, outlined in the Environmental Protection Measures section, provide adequate protection for Grand Junction's water supply interests.

3. The BLM has requested that additional visual quality effects analysis be conducted for portions of the route that might be seen from communities and other observation points in the Grand Valley, Colorado National Monument, and U.S. Highway 50 south of Whitewater. The results of this analysis indicate that the pipeline would not be noticeable from viewpoints in the Grand Valley. The pipeline would be noticeable from the vicinity of Whitewater. Additional protection measures have been identified to minimize these long-term visual quality effects.

Whitewater to Redvale (MP 85.5 to 160.6).

This segment is located along existing electrical transmission lines and pipelines throughout nearly its entire length. No major natural resource or human concerns were received from public comments concerning this segment. No route variations were evaluated in detail in the draft EIS or final EIS because none offered advantages over the proposed route; however, other routing options were considered during scoping (see Figure 1-6).

Redvale to Lone Cone (MP 160.6 to 182.7).

The location of this segment is largely dictated by interconnection requirements with partner systems, and the topographic constraints posed by crossing streams and rivers in steep-sided canyons. Draft EIS public comments about this segment centered around pipeline routing across private lands near Norwood when other options for routing across public lands appeared to be available. In response to these comments, the BLM and USFS defined another route segment that originates west of Redvale, and extends

southeast to the vicinity of Miramonte Reservoir. This new final EIS route segment would decrease the miles of private and agricultural lands crossed relative to the draft EIS; however, this route would require more steep slope crossings, and is expected to cross a larger number of cultural resource sites relative to the draft EIS route.

Lone Cone to Montezuma County Line (MP 182.7 to 205.0)

The final EIS agency preferred route between the Lone Cone area and the Montezuma County line was selected because it avoids the saline/alkaline soils, incised topography, and landslide deposits associated with proposed route location in the Ryman Creek drainage. The agency preferred route would also require minimal access road upgrades relative to the equivalent proposed route segment. The Lone Cone segment, (the agency preferred route) is shorter than the corresponding proposed route segment.

Montezuma County Line to Mancos Hill (MP 205.0 to 232.2)

Multiple routing options were developed for this segment in response to public concerns about adding an additional pipeline to existing pipeline corridors that cross private lands in the Mancos Valley near the town of Mancos. In the draft EIS, the agency preferred route was selected to follow the existing pipeline corridor because of uncertainties associated with constructing across several steep canyons associated with the proposed route and Mancos Valley East Variation, and designating these routes as USFS utility corridors. Geotechnical studies conducted by TransColorado (Sergent, Hauskins & Beckwith [SHB] 1991) indicated that the side slopes of these canyons were sufficiently stable to allow construction of multiple pipelines, if required. Based on this new information, a modified Mancos Valley East Variation, which mainly follows an existing 345-kV electrical transmission line, was selected by the BLM and USFS as the agency preferred route. With the exception of the Dolores River crossing, this segment would be located almost entirely on public land and is the shortest route.

Mancos Hill to Bloomfield (MP 232.2 to 290.4)

Multiple routing options were developed for this segment in response to public concerns raised in the Animas Valley and by the Southern Ute Tribe. The draft and final EIS agency preferred routes are the same in this segment. The primary considerations for selecting the agency preferred route were the opportunity to share an existing CO_2 pipeline along a route with fewer land use conflicts than other options. The Animas Valley Variation was not selected because of potential conflicts with private and Tribal residential and agricultural lands in the Animas Valley, and incompatibility with an existing, very wide pipeline utility corridor south of Ignacio that is considered to be near its maximum acceptable size. The San Juan Valley Variation was not selected because of expected conflicts with existing coal mines and minable coal deposits, a protected natural area (Hogback Area of Critical Environmental Concern), greater length, and extensive routing problems in suburban residential developments north of the city of Farmington and in the Animas River Valley.

CHANGES BETWEEN THE DRAFT EIS AND THE FINAL EIS

This section explains the major changes that have been made to the EIS between publication of the draft and final. The discussion is divided into three major subsections: 1) Compressor Station Changes, 2) Major Routing Changes, and 3) Other Major Changes.

Compressor Station Changes

In the draft EIS, three sites were being considered for location of a compressor site in the Mancos Valley: Dolores, Dolores Alternate 1, and the Dolores Alternate 2. In this final EIS, Dolores Alternate 2 is the choice for the proposed route; the Dolores Alternate 1 site is the choice for the agency preferred route. The Dolores site was eliminated from consideration in this final EIS at the request of TransColorado.

The Dolores Alternate 1 site in the Mancos Valley would be upgraded. An additional 190 hp generator set would be added to this compressor to meet station electrical requirements. On-site electrical generation would eliminate the need for transmission line construction.

In the draft EIS, the Rocky Mountain-Maverick compressor site was identified along the agency preferred route for location of a compressor site near Redvale, Colorado. Due to routing changes in the Redvale area, the Rocky Mountain-Redvale compressor site would replace the Rocky Mountain-Maverick compressor site.

Major Routing Changes

In the draft EIS, the agency preferred route in the Norwood area from approximately Redvale to Lone Cone crossed more private than public land. In this final EIS, the agency preferred route has been relocated to decrease the miles of private and increase the miles of public lands crossed. Analysis of the draft EIS agency preferred route through this area has been moved to Appendix B (see Segment 2, Appendix B) and this route is listed as a possible route variation.

In the draft EIS, the agency preferred route in the Mancos Valley from approximately the Montezuma County Line to Mancos Hill was located mostly on private land within an existing pipeline corridor. In this final EIS, the agency preferred route has been relocated to avoid placing yet another pipeline in this corridor. The agency preferred route through this area is a modification of the draft EIS Mancos Valley East Variation. (The Mancos Valley East Variation was discussed in Appendix B of the draft EIS.) Analysis of the draft EIS agency preferred route through this area has been moved to Appendix B (Segment 3, Appendix B) and is listed as a possible route variation.

In the draft EIS, Figures 2-1 and 2-2 and Map 3 in the back of the document showed the pipeline terminus ending at the Blanco processing plant and did not show the interconnection with the Transwestern pipeline system. In this final EIS, these illustrations show the Transwestern pipeline system interconnection near the Blanco processing plant.

Other Major Changes

Unresolved Issues

In the draft EIS, the Summary section preceding the table of contents listed the unresolved issues at the time the draft EIS was published. In this final EIS, this section has been deleted because any remaining unresolved issues are outside this scope of the NEPA analysis requirements.

Route Selection Process

In the draft EIS, a section was included in Chapter 1 describing the route selection process. This section briefly discussed the route selection process to date and included limited information on the rationale for the various routes under consideration. In this final EIS, this section has been revised and expanded to include rationale for the location of the agency preferred route.

Route Differences - Proposed Action and Agency Preferred Alternative

In the draft EIS, a section was included in Chapter 2 describing the Proposed Action and Agency Preferred routing differences in the Norwood and Mancos Valley areas. In this final EIS, these routing differences are described in Appendix B, Segments 2 and 3.

Air Quality Information

Additional air quality analysis for new compressor station sites and changes in project design for stations previously addressed in the draft EIS were incorporated into this final EIS. These changes included higher assumed CO background concentrations in general, and a higher NO_2 background concentrations for the TransColorado-Olathe compressor station site. The revised air quality impact modeling resulted in higher predicted CO impacts, although still within applicable National Ambient Air Quality Standards (NAAQS). Additional air quality impact analyses were performed to address NPS-administered areas.

Threatened and Endangered Species

In the draft EIS, threatened and endangered species information and impact analysis was based upon available file information from the USFWS, BLM, USFS, and state natural heritage data bases. In this final EIS, threatened and endangered species information and impact analysis are based upon partial threatened and endangered species field inventories, a draft BA, and a draft BO.

Cultural Resources

In the draft EIS, the proposed strategy for treating cultural resources had not yet been formulated, only a Class I (literature search) cultural resource inventory had been conducted, and the impact analysis was based on available data. In this final EIS, the proposed strategy for treating cultural resources has been included in both Chapter 2 (description of the project) and Appendix F, the partial Class III cultural resource inventory information has been included in Chapter 3 (Affected Environment), and the impact analysis in Chapter 4 has been revised based on the proposed strategy and projections about findings of the Class III cultural resource inventory once it is completed.

Protection Measures Tables

In the draft EIS, a table labeled General Protection Measures (Table 2-7) listed protection measures that TransColorado has agreed to implement on both public and private lands. In this final EIS, Table 2-7 has been relabeled Environmental Protection Measures on Federal Lands and renumbered as 2-12. An environmental protection measures table that addresses private lands only has been added as Table 2-14. These tables apply to both the Proposed Action and Agency Preferred Alternative.

Visual Simulation on the Grand Mesa

In the draft EIS, the impact analysis for the Grand Mesa was discussed in narrative terms only. In this final EIS, the narrative discussion has been supplemented with a visual simulation of the pipeline route crossing the Grand Mesa.

Uncommitted Mitigation

In the draft EIS, a section listing additional measures that could be taken to reduce air quality impacts was included in Chapter 4, Uncommitted Mitigation. In this final EIS, this section has been deleted because these measures would not be required to meet applicable air quality standards.

CHAPTER 2

ALTERNATIVES INCLUDING THE PROPOSED ACTION

INTRODUCTION

This chapter describes TransColorado Gas Transmission Company's proposed natural gas pipeline system (Proposed Action) and the Federal agencies' alternatives to the Proposed Action (Agency Preferred Alternative and No Action Alternative).

The TransColorado Proposed Action is to construct, operate, and maintain a natural gas transmission pipeline system. The Proposed Action route (referred to in this final EIS as the proposed route) begins near Meeker, Colorado, and ends near Bloomfield, New Mexico (Figure 2-1).

The Agency Preferred Alternative is to allow TransColorado to construct, operate, and maintain the natural gas transmission pipeline system as proposed but along a different route. The Agency Preferred Alternative route (referred to in this final EIS as the agency preferred route) begins and ends at the same locations as the proposed route, but it departs from the proposed route in the Norwood and Mancos Valley areas (Figure 2-2). Please note that the agency preferred route in the Norwood and Mancos Valley areas has changed since publication of the draft EIS. The agency preferred route shown in Figure 2-2 is the most recent route through these two areas. The agency preferred route that appeared in the draft EIS (referred to in this document as the draft EIS agency preferred route) is now illustrated and discussed in Appendix B along with other route variations.

The No Action Alternative is to not allow the pipeline project. Under this alternative, the Bureau of Land Management (BLM), United States Forest Service (USFS), and Federal Energy Regulatory Commission (FERC) would not authorize the Proposed Action or the Agency Preferred Alternative.

Although the pipeline routes under the Proposed Action and Agency Preferred Alternative have been identified in this final EIS, several route variations are still being considered. These variations could replace portions of the routes proposed by TransColorado and the Federal agencies. These variations, termed route variations, are described and analyzed in Appendix B.

It should also be noted that in La Plata County, the proposed/agency preferred route could be located on land-owned by the Southern Ute Indians, or in the right-of-way (ROW) for Colorado State Highway 140 between milepost (MP) 270.9 and MP 271.2 (proposed route). This route variation was not shown on the maps and figures in this EIS because the parcels are undetectable at the mapping scale used.

PROPOSED ACTION

Under the Proposed Action, TransColorado would construct, operate, and maintain a 22- and 24-inch-diameter natural gas transmission pipeline system between the Piceance Basin southwest of Meeker, Colorado, and connections with other interstate natural gas pipelines near a large, existing gas processing facility called the Blanco Plant near Bloomfield, New Mexico. The permanent ROW granted to TransColorado by the BLM would be 50 feet wide. The pipeline route proposed by TransColorado is shown on

Figure 2-1. The proposed pipeline route would be 306 miles long and would require construction of approximately 3 miles of interconnecting pipeline. The maximum design flow rate for the project would be 300 million cubic feet of natural gas per day (MMcfd), based on a maximum allowable operating pressure of 1,287 pounds per square inch gauge (psig) for the approximately 264 miles of 22-inch pipe segment and 1,310 psig for the approximately 42 miles of 24-inch pipe segment.

Construction

If the project is approved, the BLM and USFS would issue TransColorado a Temporary Use Permit (TUP) for construction purposes authorizing disturbance of 25 feet in addition to the 50 foot ROW disturbance authorized by the permanent ROW grant. The construction ROW used as a basis for impact analysis in this EIS would be 75 feet wide, unless otherwise noted.

As explained under the Federal Approval Process and Authorizing Actions section in Chapter 1 of the final EIS, disturbances outside the approved construction ROW would require additional TUPs from the affected land manager. All work outside the approved construction ROW would halt, pending issuance of the TUPs. The affected land manager would conduct site-specific environmental analysis to determine whether or not to issue the additional TUPs.

Approximately 2,865 acres would be disturbed during construction (including ROW, six new compressor station sites, and six meter station sites). This disturbance includes lands previously disturbed by other projects as well as previously undisturbed lands. Table 2-1 lists percentages of land under private, state, and Federal ownership that would be crossed. A total of 52 percent of the required ROW would be located on Federal lands, 5 percent on state lands, and 43 percent on private lands.

Design and construction standards would be in conformance with the requirements of all applicable Federal, state, and local laws, rules, and regulations and would be in specific compliance with industry standards.

The route would parallel other pipelines and utilities for approximately 180 miles or 60 percent of the route. Table 2-1 indicates miles of pipeline parallel to other facilities. TransColorado would maintain an offset of between 25 and 50 feet from existing pipelines and power lines. In some cases, it would be feasible to locate the route in such a manner as to share ROW with existing facilities. In this case, new disturbance caused by the proposed pipeline would be minimized. The extent to which such construction and subsequent sharing of linear ROW or existing corridors can occur would be based on the exact location of existing facilities in the ROW, the width of existing ROW, and how these factors relate to desired offsets and agreements with utility operators. Quantification of actual shared ROW would only be possible when final staking of the ROW occurs.

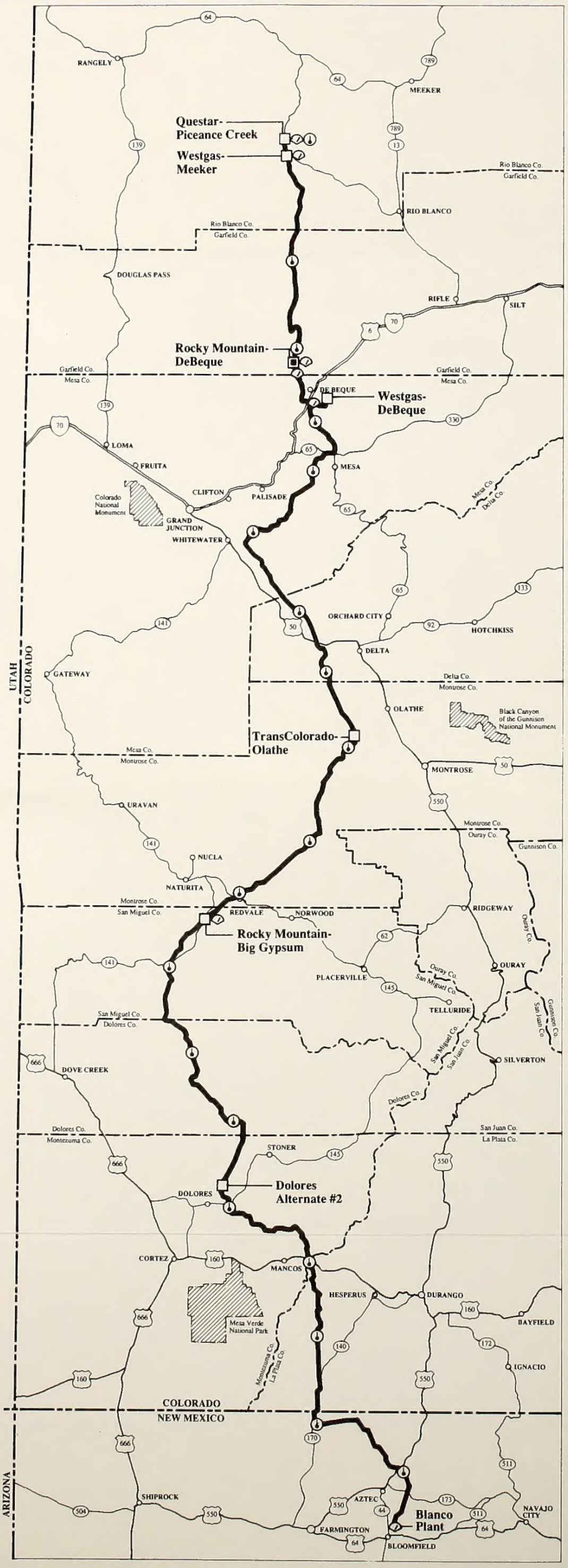
Pipeline Construction

The general pipeline construction phases that are common to all pipelines are: clearing, grading, excavation, stringing, bending, welding, coating, lowering, backfilling, hydrostatic testing, cleanup, restoration, and commissioning (see Figure 2-3). The proposed pipeline construction techniques are similar to those of standard pipeline construction methods and would be in conformance with all applicable U.S. Department of Transportation (DOT) regulations and FERC guidelines. Equipment and pipeline storage areas would be located on commercially rented areas in cities along the route.

TransColorado will not use materials containing polychlorinated biphenyls (PCB) during construction, operation, or maintenance of the

PROPOSED ACTION

FIGURE 2-1



North 0 4 8 16 miles

Proposed Route

Existing Compressor Station, Pipeline Interconnection and Meter Station

Proposed Compressor Station, Pipeline Interconnection and Meter Station

Proposed Compressor Station

Proposed Meter Station and Pipeline Interconnection

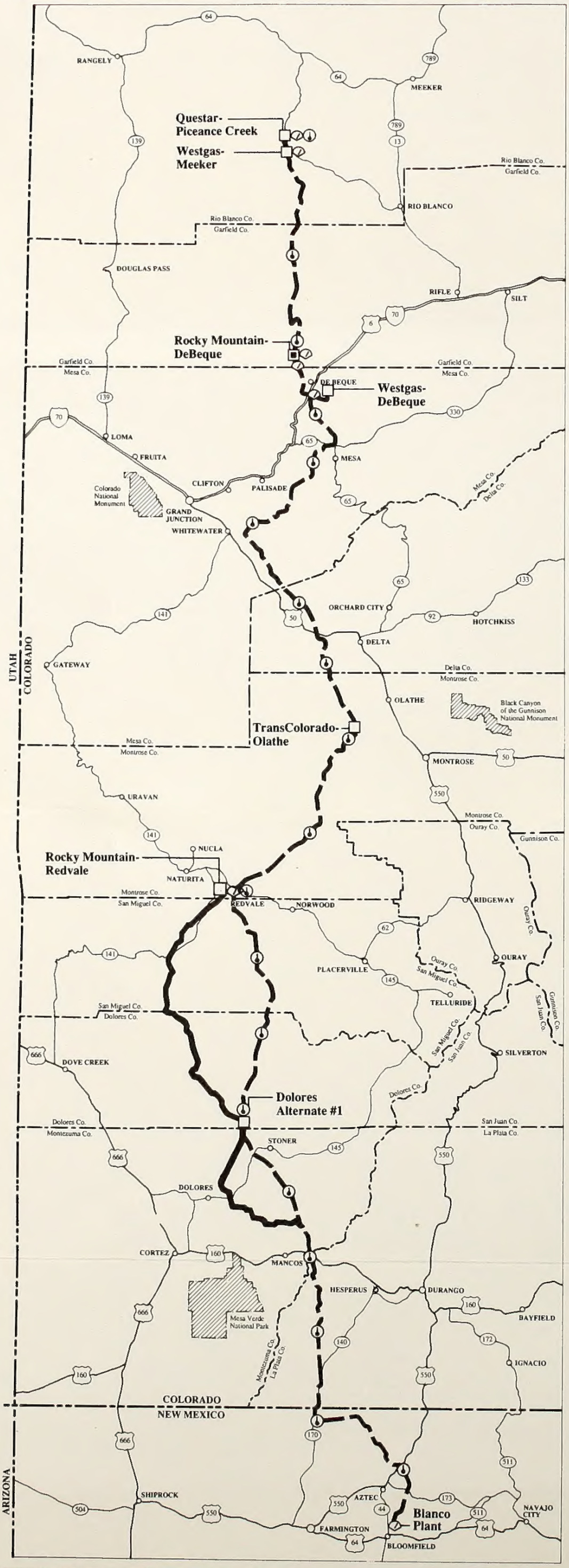
Proposed Block Valve

TRANSCOLORADO GAS TRANSMISSION PROJECT

ARCHIVED

AGENCY PREFERRED ALTERNATIVE

FIGURE 2-2



TRANSCOLORADO GAS TRANSMISSION PROJECT

TABLE 2-1

TransColorado Gas Transmission Project
Land Ownership and Parallel Facilities
Proposed Action

Item	Units
Length (miles)	306
Disturbance (total acres)	2,865
Ownership (percent)	
Private	43
BLM	34
Forest Service	18
State	5
Indian Land	<1
Parallel Facilities	
Total Miles	180
Percent	60
Residences within 500 feet of ROW	42
Road Improvements (miles)	199
Existing Compressor Stations	1
Proposed Compressor Stations	6
Proposed Meter Stations	6
Proposed Block Valves	19

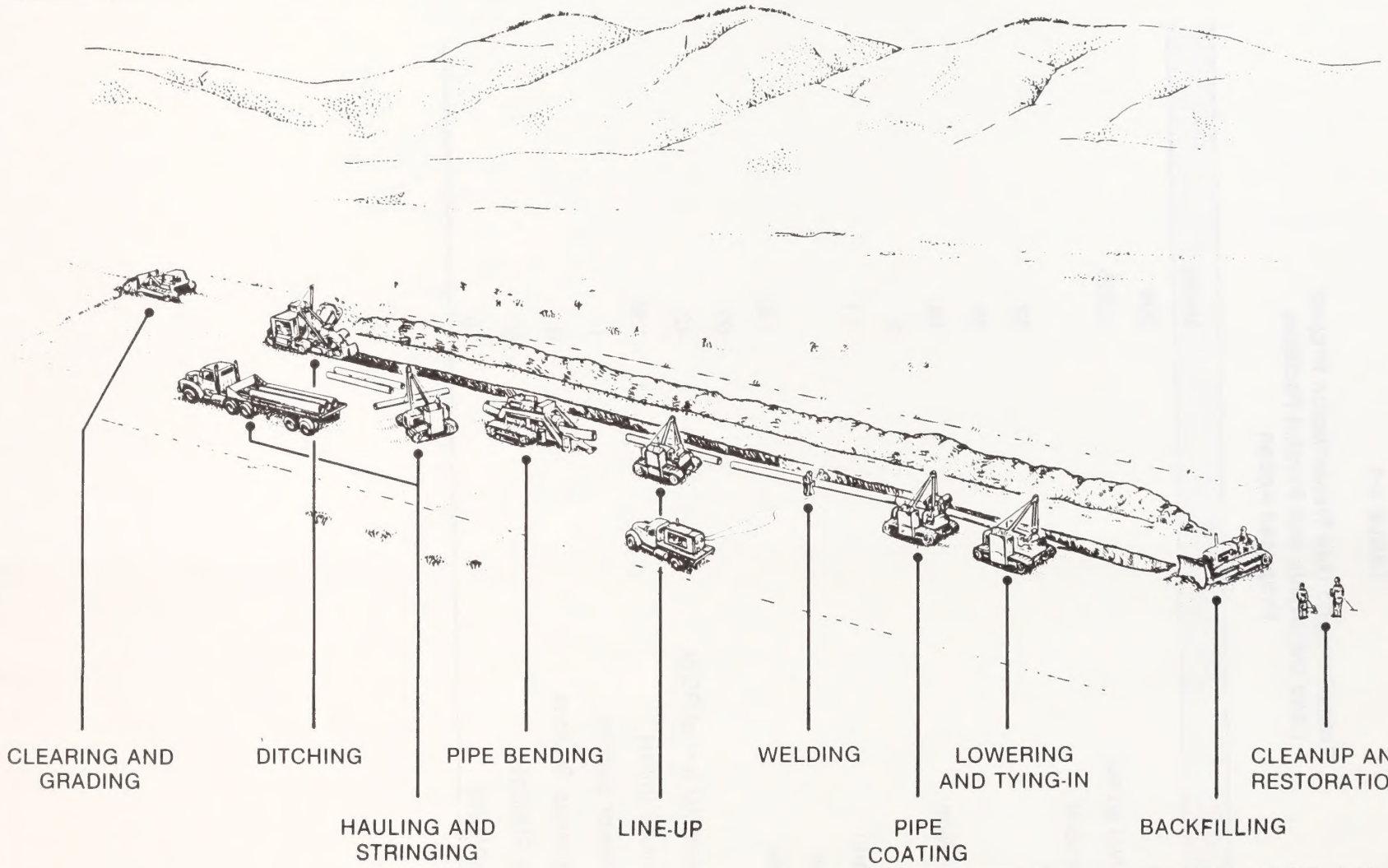


Figure 2-3. TransColorado Gas Transmission Project Typical Construction Spread

ENSR Consulting and Engineering

pipeline. TransColorado shall comply with all applicable Federal, state, and local laws and regulations concerning the use, storage, and control of designated hazardous materials.

Clearing and Grading

The vegetation on the 75-foot ROW would be removed only where absolutely necessary to mitigate visual impacts, and to allow access and construction equipment to operate safely. As indicated in the Environmental Protection Measures section in Chapter 2, the cleared ROW would be narrowed to 50 feet on the Grand Mesa between MP 74.0 (elevation 8,720 feet) and MP 75.7 (elevation 6,400 feet). Disturbance outside the 50-foot approved ROW for this section or the 75-foot approved ROW for other sections would require an additional TUP. Supplemental environmental analysis would be conducted to determine whether or not to issue the TUP.

Trees would be cleared only when necessary and not in a straight line. Feathering would be done in areas specified by the land managing agency to reduce visual impacts. All brush and trees may be windrowed along the ROW so they could be dispersed back over the ROW to aid in the revegetation and also to impede unauthorized traffic. As discussed in the Environmental Protection Measures section, erosion control features include mulches, matting, temporary seedings, buffer zones, sediment barriers, water bars, sediment basins, and ditchline breakers (trench plugs). No construction activities would be allowed during wet conditions when equipment creates greater-than-4-inch ruts.

Trenching

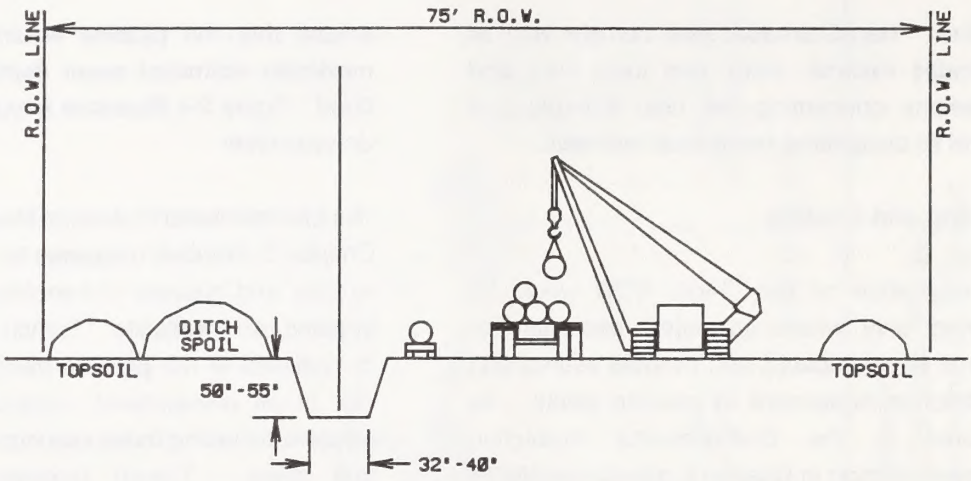
A trench would be dug using trenching machines, rocksaws, backhoes, and blasting (only where necessary) to a depth of at least 60 inches and 32 to 40 inches wide. The depth of the trench would be increased in all potential floodplain areas to ensure that the pipeline would be below the maximum estimated scour depth of a 100-year flood. Figure 2-4 illustrates a typical right-of-way cross-section.

The Environmental Protection Measures section in Chapter 2 includes measures to reduce impacts to soils and impacts of trenching across roads, streams, and wetlands. Trench breakers would be installed at the pipeline trench entrance and exit of all encountered wetlands and shallow aquifers, including those associated with streams, and rivers. Trench breakers are typically constructed of earth-filled sacks or synthetic foam. They are similar to waterbars in that they control erosion in the trench the same way waterbars accomplish this in the ROW. Trench breakers are typically used in conjunction with waterbars. The need for and spacing of trench breakers is related to the steepness of the slope. Trench breakers would be installed to prevent water runoff in the ditch after pipeline installation on all slopes 20 percent or greater at a minimum spacing of 50 feet.

Hydrostatic Testing

After placing the pipeline in the trench and backfilling, the line would be hydrostatically tested to verify integrity of the pipeline. The length of each test section would be determined by topography. Hydrostatic testing would involve withdrawing water from local streams or rivers and testing the pipeline, under pressure, for its integrity. Water would be withdrawn from approved locations (Table 2-2), but would not be a significant portion (< 5 percent) of the total flow. TransColorado would pay a one-time fee to the Upper Colorado River Recovery Fund to mitigate impacts as a result of any water depletion.

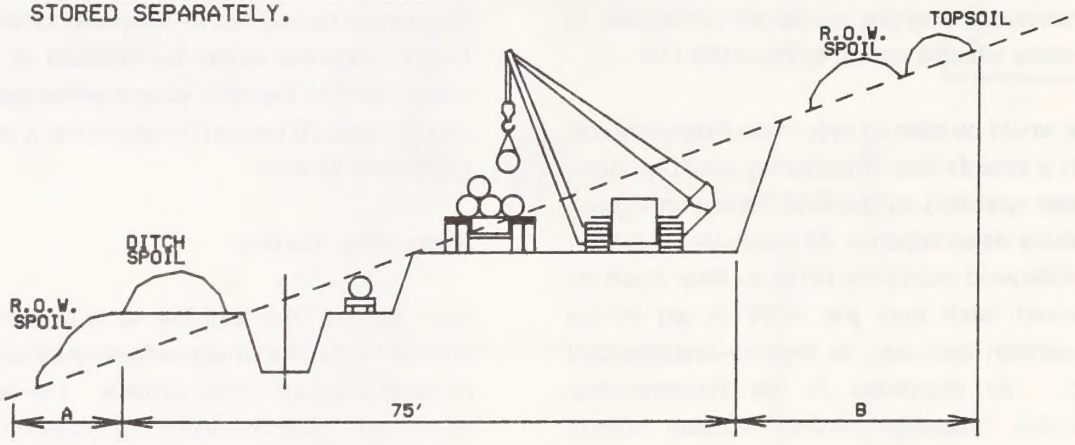
Following hydrostatic testing, the water would be discharged in approved locations (Table 2-2) in such a manner as to not cause increased erosion



TYPICAL CROSS SECTION ON EVEN TERRAIN

N.T.S.

TYPICAL TOPSOIL AND SUBSOIL STORED SEPARATELY.



NOTE: WHERE POSSIBLE TOPSOIL WILL BE PLACED ON TOP SIDE OF CUT.

TYPICAL CROSS SECTION ON SLOPING TERRAIN

N.T.S.

DEGREE OF SLOPE	A	STANDARD	B	TOTAL
30	5'	75'	70'	150'
25	5'	75'	57'	137'
20	5'	75'	45'	125'
15	5'	75'	32'	112'
10	0'	75'	25'	100'
5	0'	75'	12'	87'
0	0'	75'	0'	75'

SUBJECT TO FINAL ENGINEERING DESIGN

Figure 2-4. TransColorado Gas Transmission Project Typical Right-Of-Way Cross Sections

Source: TransColorado

ENSR Consulting and Engineering

Table 2-2

TransColorado Gas Transmission Project
Hydrostatic Test Water Withdrawal Sites
Proposed Action and Agency Preferred Alternative

Location	Maximum Volume (gal)	Maximum Rate (gpm)
Piceance Creek	1,790,000	718
Colorado River	1,440,000	1,500
Plateau Creek	1,005,000	1,500
Kannah Creek	431,000	673
Gunnison River	4,342,000	1,500
San Miguel River	1,730,000	1,500
Disappointment Creek	405,000	404
Dolores River	2,730,000	1,500
LaPlata River	1,300,000	808
Animas River	1,700,000	1,500

TransColorado Gas Transmission Project
Hydrostatic Test Water Discharge Sites
Proposed Action and Agency Preferred Alternative

Location	Maximum Volume (gal)	Maximum Rate (gpm)
Piceance Creek	1,790,000	1,000
Colorado River	810,000	1,000
Plateau Creek	1,635,000	1,000
Kannah Creek	1,603,000	1,000
Gunnison River	3,170,000	1,000
San Miguel River	1,730,000	1,000
Disappointment Creek	1,675,000	1,000
Dolores River	1,460,000	1,000
La Plata River	1,300,000	1,000
Animas River	1,700,000	1,000

or pollution of the rivers or streams. The appropriate agencies would be consulted and any required permits would be obtained prior to actual testing. Testing would be performed in accordance with 40 CFR Part 192 Subpart J, to ensure pipeline integrity. A detailed description of the process is contained in TransColorado's plan of development (POD). The Environmental Protection Measures section in this chapter includes measures to protect the water sources. The entire system would be tested according to DOT guidelines.

Hydrostatic testing waters would be tested for volatile organic compounds and metallic particles. Testing and treatment methods would be reviewed by the New Mexico Field Office, USFWS, prior to any return of testing water to the rivers in New Mexico.

Cleanup and Restoration

The ROW would be graded back to original contour, erosion control devices would be installed, and revegetation would be completed as described in the Environmental Protection Measures section in this chapter and in Appendix D, Revegetation Species. All waste materials either would be stored or disposed of at an appropriate waste disposal site in accordance with applicable regulations. An estimated 4,360 cubic yards of solid waste would be generated.

Special Areas Construction

Unstable Slopes

Unstable slopes and fault crossings would be studied to identify the exact location for the pipe. Other considerations would be the wall thickness of the pipe, pipe realignment, shut-off valves, and density of the backfill to allow for slight movement of the pipe. Each site would be individually designed or the adequacy of standard construction verified, once the actual route is designated on the ground. Four active landslide areas would be crossed. There are three locations on the Grand Mesa, and one location in the Ryman Creek-Divide area. Chapter 3, Table 3-4, gives a more detailed listing of these landslide areas.

The erosion control measures mentioned under Clearing and Grading would also be employed in the crossing of unstable slopes.

Side Slopes

Sidehill cuts would be kept to a minimum. When side slopes increase in steepness, so that trenching and pipelaying equipment cannot be operated safely, the ROW would be benched to provide a level work space for construction equipment. A bench is typically constructed by cutting into the slope and then using the cut material as temporary fill to make the bench. As the side slope angle steepens, the cut and fill requirements increase, resulting in a wider cleared ROW. As indicated in the Environmental Protection Measures section in Chapter 2 of the final EIS, the cleared ROW would be narrowed to 50 feet on the Grand Mesa between MP 74.0 (elevation 8,720 feet) and MP 75.7 (elevation 6,400 feet). Disturbance outside the 50-foot approved ROW for this section or the 75-foot approved ROW for other sections would require an additional permit (TUP) from the affected land manager. Supplemental environmental analysis would be conducted to determine whether or not to issue the TUP.

Figure 2-3 illustrates the work space requirements for typical side slope construction; the figure also shows the relationship between slope steepness and ROW width requirements. After construction is completed, the ROW is recontoured back as closely as possible to the original slope grade. Recontouring involves

redistributing the cut material onto the face of the cut slope and compacting it to ensure slope stability.

Ascent-Descent Slopes

Construction on steep ascent/descent slopes (construction is proceeding parallel to the slope angle) requires certain modifications in the equipment used. A staging area at the top of the slope is commonly required to store pipe and position construction machinery (see Figure 2-5). Staging areas for storage of pipe and machinery have not yet been identified on the ground. As indicated in the Environmental Protection Measures section, the ROW would be narrowed to 50 feet on the Grand Mesa between MP 74.0 (elevation 8,720 feet) and MP 75.7 (elevation 6,400 feet). Typically, bulldozers can be used for leveling the ROW without the support of winches from the top of the slope. Trenching is normally completed with a trackhoe. A common technique is to use cables to tie the working trackhoe to bulldozers positioned on the ROW above it. Tension on the cables enables the trackhoe to maintain a safe position necessary to dig efficiently. The bulldozers gradually pull the trackhoe up the grade as trenching progresses.

Pipe is bent to fit the contour of the trench on steep slopes. The bending operations are executed at the staging areas. Pipe joints are welded into sections at the staging areas, then hauled onto the steep slopes to be welded into a continuous string. Coating and welding inspection procedures would be the same as routine construction conditions.

Once the pipe joints have been wrapped and sealed, the pipeline is lowered into the ditch. Side-boom tractors are used to simultaneously lift the pipe, position it over the ditch, and lower the pipe in place. The pipe is padded by section as the line is lowered into the ditch. Trench breakers are constructed to prevent water runoff into the ditch after pipeline installation on all slopes 20 percent or greater at a spacing of no less than 50 feet. The pipeline would then be completely backfilled. Once backfilling is completed, the ROW would be restored to pre-construction grade to the extent practical. The erosion control and revegetation measures are the same as those presented for routine construction, except for more frequent waterbar intervals as slopes become steeper.

Canyon Crossings

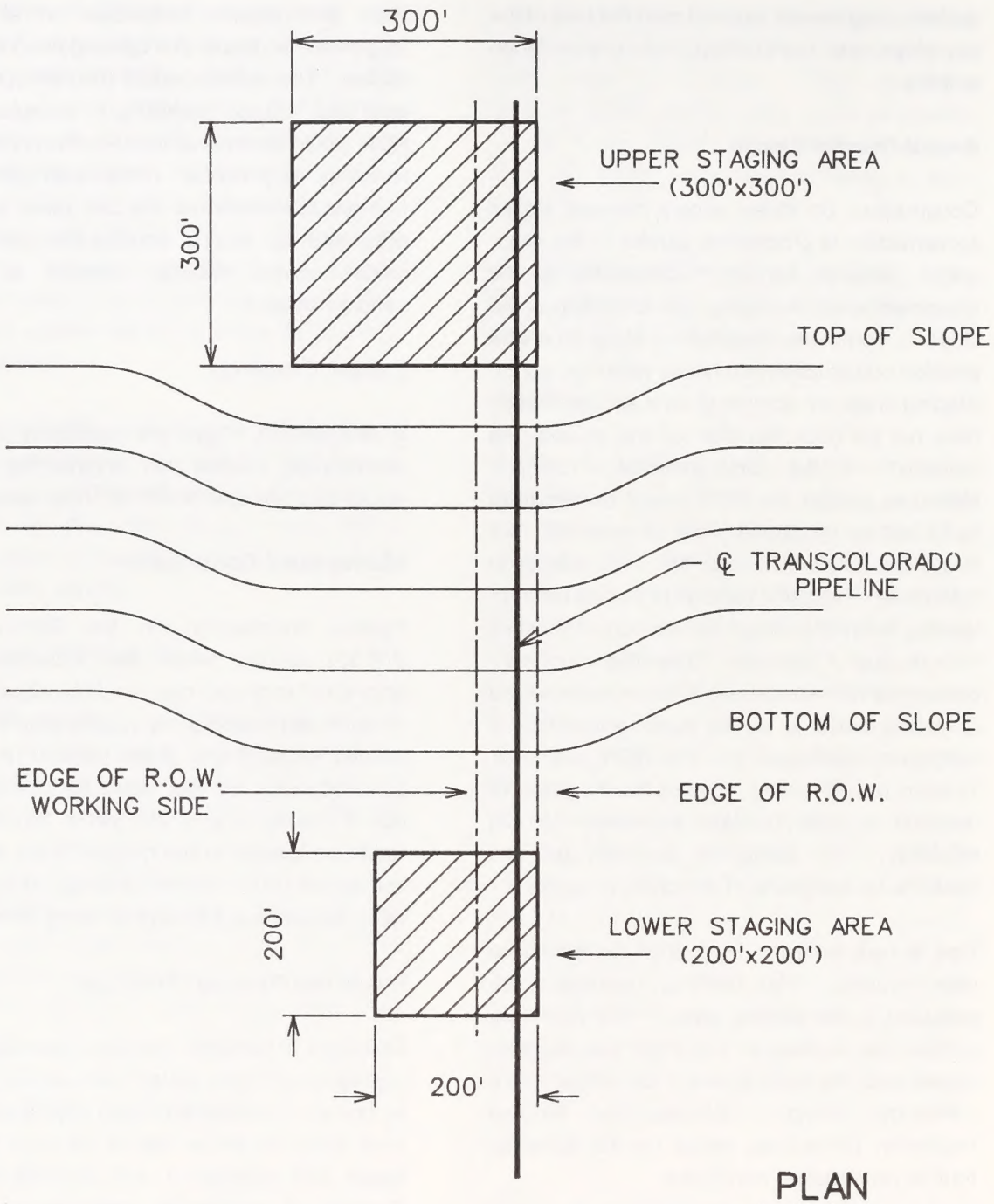
Where canyon slopes are potentially unstable, geotechnical studies and engineering designs would be done specifically for those areas.

Aboveground Construction

Pipeline construction on the Gilman Gulch (MP 32) section, which has extremely steep slopes and rock outcrops, would be aboveground on anchored supports. A staging area would be needed for each end of the section. A staging area 300 feet x 300 feet would be located at the top of the hill, and a 200 feet x 200 feet area would be located at the bottom of the hill. It is anticipated that a narrow clearing (20 to 50 feet wide) would be cut through existing timber.

Roads and Railroad Crossings

Crossings of railroads, interstate highways, state highways, and most paved roads would be done by boring. This method would require additional work space on either side of the bore for work space and storage of soil (see Figure 2-6). Crossing of unsurfaced, lightly traveled roads would be completed by the open-cut method or as required by the authorized agency. Crossing of some paved, lightly traveled roads would also be open-cut. The crossing would generally be completed in 1 day. Provisions for a detour would be provided as needed. Two rail crossings, 4 Federal highway crossings, 7 state



PLAN

SCALE : 1" = 200'

NOTE:

PIPELINE CONSTRUCTION R.O.W.
75' NOMINAL WIDTH
(50' IN AREAS OF CRITICAL
VISUAL CONCERN)

Figure 2-5. TransColorado Gas Transmission Project Typical Steep Slope Construction Staging Requirements

Source: TransColorado

ENSR Consulting and Engineering

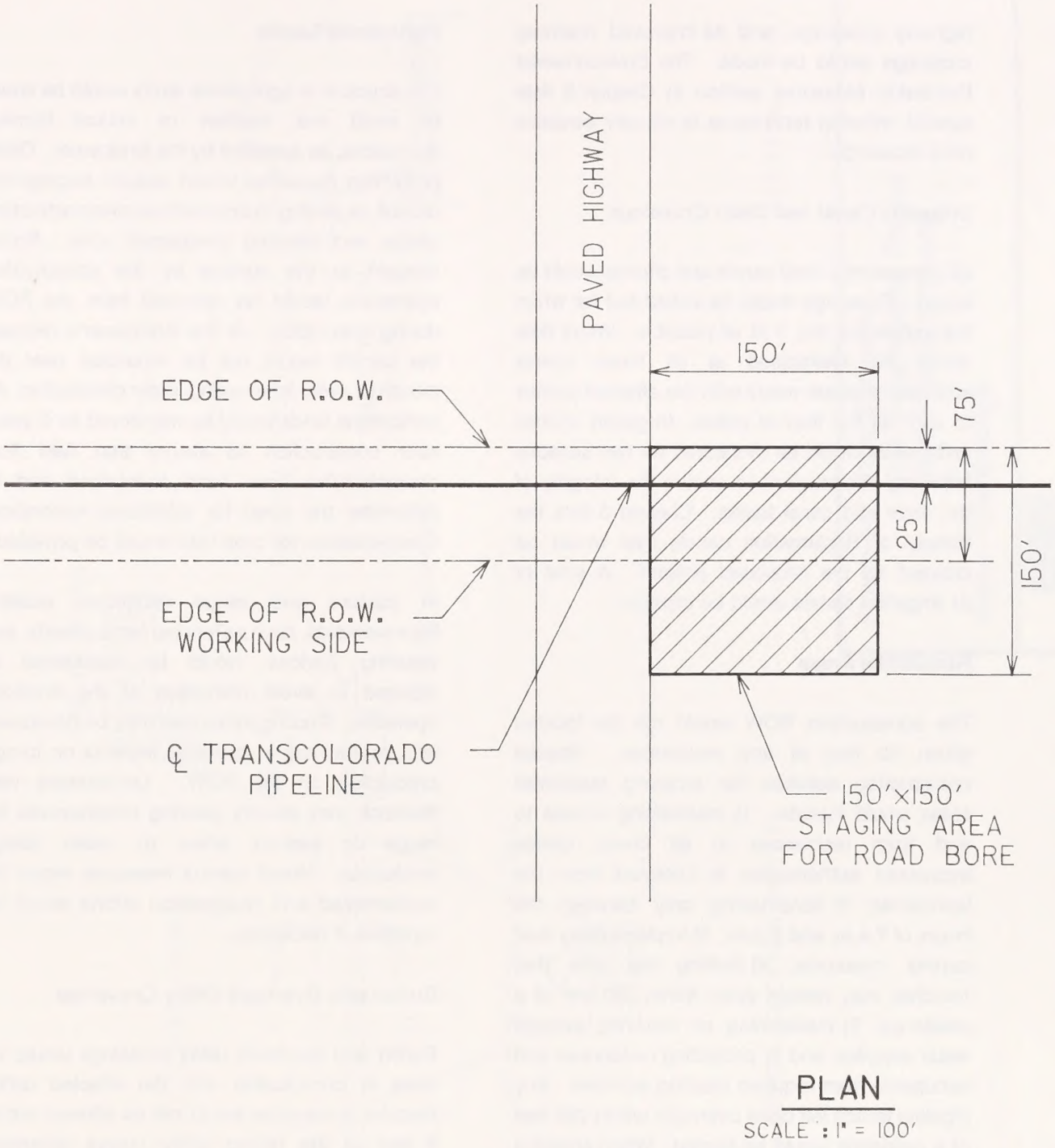


Figure 2-6. TransColorado Gas Transmission Project Typical Road Crossing Staging Requirements

Souce: TransColorado

ENSR Consulting and Engineering

highway crossings, and 44 improved roadway crossings would be made. The Environmental Protection Measures section in Chapter 2 lists special crossing techniques at visually sensitive road crossings.

Irrigation Canal and Ditch Crossings

All permanently lined canals and ditches would be bored. Crossings would be scheduled for when the canals are dry, if at all possible. Water flow would be maintained at all times unless arrangements are made with the affected parties to shut off the flow of water. Irrigation ditches and canals would be monitored for two seasons following construction to ensure the integrity of the ditch and canal banks. Chapter 3 lists the Bureau of Reclamation canals that would be crossed by the proposed project. A total of 21 irrigation canals would be crossed.

Residential Areas

The construction ROW would not be located within 50 feet of any residences. Special construction activities for crossing residential areas would include: 1) maintaining access to and from residences at all times, unless expressed authorization is obtained from the landowner; 2) constructing only between the hours of 7 a.m. and 5 p.m.; 3) implementing dust control measures; 4) limiting the time that trenches may remain open within 250 feet of a residence; 5) maintaining or restoring potable water supplies; and 6) protecting residences and occupants from required blasting activities. Any pipeline trench left open overnight within 250 feet of a residence would be fenced. When crossing private roads, owners would be notified at least 24 hours in advance of construction and each crossing would be completed within 3 hours.

Agricultural Lands

Construction in agricultural lands would be timed to avoid wet weather or critical farming operations, as specified by the landowner. Other protection measures would include segregating topsoil, regrading to approximate preconstruction grade, and relieving compacted soils. Rocks brought to the surface by the construction operations would be removed from the ROW during restoration. At the landowner's request, the backfill would not be mounded over the trench to avoid interrupting water distribution. All agricultural lands would be monitored for 2 years after construction to assure that field flow characteristics have been maintained and to determine the need for additional restoration. Compensation for crop loss would be provided.

In pasture and range situations, existing improvements, such as fences, cattle guards, and watering devices, would be maintained or repaired to avoid disruption of the livestock operation. Grazing deferment may be developed with landowners to minimize impacts on forage production on the ROW. Landowners with livestock may specify seeding requirements for range or pasture areas to retain forage production. Weed control measures would be implemented and revegetation efforts would be repeated, if necessary.

Buried and Overhead Utility Crossings

Buried and overhead utility crossings would be done in consultation with the affected utility. Machine excavation would not be allowed within 5 feet of the buried utility unless otherwise specified by the affected utility. Specific construction requirements would be negotiated between TransColorado and the affected utility company prior to construction. Ten major power transmission lines and five major pipeline crossings would be made. Figure 2-7 shows a typical buried utility line crossing

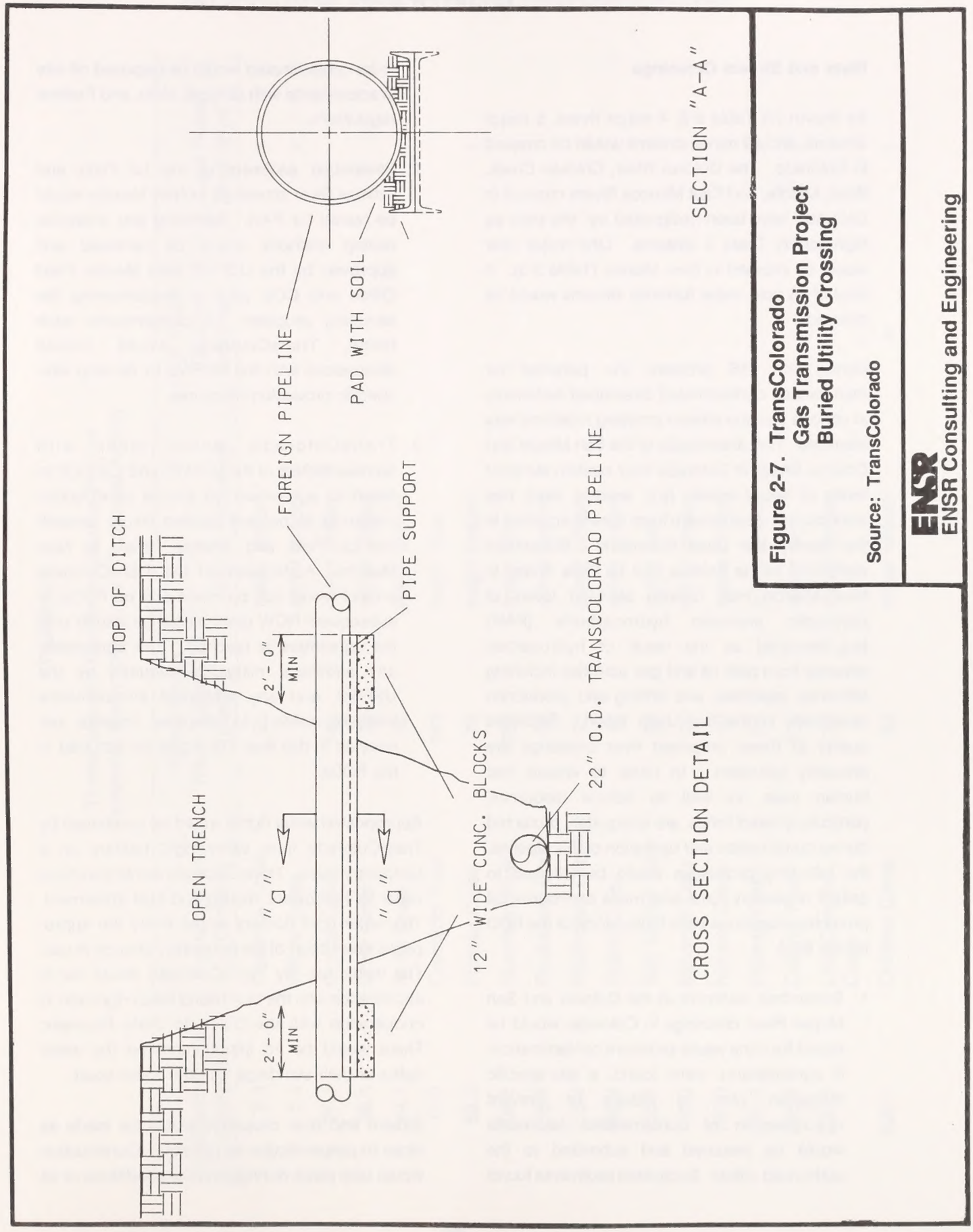


Figure 2-7. TransColorado Gas Transmission Project Buried Utility Crossing

Source: TransColorado

ENSR Consulting and Engineering

River and Stream Crossings

As shown on Table 2-3, 4 major rivers, 5 major streams, and 19 minor streams would be crossed in Colorado. The Dolores River, Chicken Creek, West, Middle, and East Mancos Rivers crossed in Colorado have been designated by the state as high quality Class 2 streams. One major river would be crossed in New Mexico (Table 2-3). A total of 15 cold water fisheries streams would be crossed.

During this EIS process, the potential for man-caused contaminated streambed sediments at various pipeline stream crossing locations was identified. The streambeds of the San Miguel and Dolores Rivers in Colorado may contain elevated levels of heavy metals (e.g. arsenic, lead) that were carried downstream from mining activities in the nearby San Juan Mountains. Streambed sediments in the Animas and La Plata Rivers in New Mexico may contain elevated levels of polycyclic aromatic hydrocarbons (PAH) (e.g. benzene) as the result of hydrocarbon releases from past oil and gas activities including refineries, pipelines, and drilling and production operations in the San Juan Basin. Sediment quality at these proposed river crossings are presently unknown. In order to ensure that human uses, as well as natural resources, particularly listed fishes, are adequately protected during construction and operation of this pipeline, the following processes would be followed to collect necessary data, and make environmental protection decisions prior to issuance of the ROD by the BLM.

1. Streambed sediment at the Dolores and San Miguel River crossings in Colorado would be tested for mine waste sediment contamination. If contaminants were found, a site-specific mitigation plan to reduce or prevent re-suspension of contaminated sediments would be prepared and submitted to the authorized officer. Excavated sediments found to be contaminated would be disposed off-site in accordance with all local, state, and Federal regulations.

2. Streambed sediment at the La Plata and Animas River crossings in New Mexico would be tested for PAH. Sampling and analytical testing methods would be reviewed and approved by the USFWS New Mexico Field Office and COE prior to implementing the sampling program. If contaminants were found, TransColorado would initiate discussions with the USFWS to develop site-specific protection measures.

3. TransColorado would meet with representatives of the USFWS and the COE to reach an agreement on special construction measures to prevent pipeline failure beneath the La Plata and Animas Rivers in New Mexico. A decision on the TransColorado project would not be made and no RODs or subsequent ROW grant would be issued until the agreement is reached. The agreement, any additional mitigation required by the USFWS, and any additional environmental analysis needed to disclose impacts not covered in this final EIS would be included in the RODs.

Appropriated water rights would be purchased by TransColorado from water right holders on a temporary basis. TransColorado would purchase water for hydrostatic testing and dust abatement. The water right holders would notify the appropriate water court of the temporary change in use. The water use by TransColorado would be in accordance with the purchased water right and in cooperation with the Colorado State Engineer. There would be no infringement on the water rights or their standings with the water court.

Stream and river crossings would be made as close to perpendicular as possible. Construction would take place during low flow conditions or as

TABLE 2-3

TransColorado Gas Transmission Project
Perennial Water Crossings - Proposed Action

Approximate Milepost	Perennial Water Crossing	Approximate Width Traversed (feet)	Size of Crossing	High Water Quality Streams[1]	Cold Water Fisheries[2]
2.3	Piceance Creek	25	major stream		x
8.5	Willow Creek	5	minor stream		x
25.1	Crystal Creek	140	minor stream		
36.3	Conn Creek	30	minor stream		
44.1	Roan Creek	50	major stream		
47.0	Colorado River	375	major river		
59.0	Plateau Creek	70	major stream		x
108.5	Gunnison River	250	major river		x
108.7	Roubideau Creek	25	minor stream		
113.4	Roubideau Creek	25	minor stream		
146.4	Sheep Creek	15	minor stream		x
153.7	San Miguel River	80	major river		x
158.3	Maverick Draw	20	minor stream		x
160.0	Naturita Creek	40	minor stream		x
205.2	Plateau Creek	20	minor stream		x
225.9	Dolores River	100	major river	x	x
230.2	Lost Canyon Creek	30	minor stream		
238.1	Chicken Creek	30	minor stream	x	x

TABLE 2-3 (Continued)

Approximate Milepost	Perennial Water Crossing	Approximate Width Traversed (feet)	Size of Crossing	High Water Quality Streams[1]	Cold Water Fisheries[2]
240.7	West Mancos River	50	major stream	x	x
243.9	Middle Mancos River	30	major stream	x	x
246.4	East Mancos River	30	minor stream	x	x
265.4	La Plata River	30	minor stream		
270.0	La Plata River	30	minor stream		
270.9	La Plata River	30	minor stream		
272.4	La Plata River	30	minor stream		
275.0	La Plata River	30	minor stream		
275.7	La Plata River	30	minor stream		
276.0	La Plata River	30	minor stream		
293.7	Animas River	150	major river	[3]	x

[1] High Water Quality Streams. Colorado: These streams are included in the High Quality Class II designation. These waters shall be maintained and protected at this existing quality unless lower quality is allowed by the state to accommodate important economic or social development.

[2] Cold Water Fisheries. Colorado: These are waters that 1) currently are capable of sustaining a wide variety of cold water biota, including sensitive species; 2) could sustain such biota for correctable water quality conditions.

[3] The Animas River in New Mexico has been designated as suitable for irrigation, municipal supply, industrial supply, livestock watering, wildlife watering, marginal cold water fishery, warm water fishery, and secondary contact recreation.

approved by the authorized officer. The pipeline would be buried below the maximum estimated scour depth of a 100-year flood in all potential floodplain areas. Blasting would only be done after consultation with the proper authorities. Vegetation along the banks would be preserved as much as possible. Waterbars would be constructed wherever necessary to prevent increased erosion. Flume pipe culverts may be used to allow uninterrupted flow in important fisheries. Mudboards (mats) would be used where necessary to support the construction vehicles. Backfill would be performed to minimize the agitation of the fill, which would increase erosion. Rock waterways may be constructed where intermittent streams are subject to high-intensity runoff. Excavated materials would be stockpiled at least 10 feet from the bank on streams less than 10 feet wide.

Major streams would be crossed by the open-cut trenching method with tracked backhoes. The pipe would be lowered into the trench and backfilled as quickly as possible.

Staging areas would be located at least 100 feet from the stream bank on BLM and USFS lands to minimize impacts resulting from construction and to avoid accidental spills (see Figure 2-8). As indicated, exact locations of staging areas are not yet known. Restoration will include, but is not limited to, establishment of preconstruction contours, bank stabilization, staging area restoration, and revegetation of all disturbed areas. Abandoned diversions would be plugged to avoid trapping fish. Consultation with appropriate agencies would aid in developing site-specific plans for important fisheries. Results of consultation would be placed in the record of decision (ROD).

Wetland Crossings

The pipeline would be located to avoid wetland disturbance where possible. The shortest route, usually perpendicular to the stream channel, would be used to cross wetlands associated with river systems. This would minimize disturbance where total wetland avoidance is not possible.

The pipeline would be buried below the maximum estimated scour depth of a 100-year flood in all potential floodplain areas. The width of the cleared ROW would be kept to the absolute minimum. Equipment pads and wide-track, or balloon-tire, construction equipment would be used to reduce the amount of disturbance. The entry of the construction equipment into the wetlands would be kept to an absolute minimum. Measures to protect wetlands are included in the Environmental Protection Measures Section in Chapter 2.

Staging Areas

Staging areas would be needed for ascent/descent slope crossings, river crossings, road crossings, and canyon crossings. Staging areas would be located at least 100 feet from stream banks on BLM and USFS lands. As indicated, locations of staging areas have not yet been identified. Once locations are known, TransColorado would be required to apply for additional permits (TUPs) for these staging areas, and site-specific environmental analysis would be required prior to issuing the TUPs.

Endangered Plant Crossings

Twenty individuals of Uinta Basin hookless cactus that occur near the Colorado and Gunnison Rivers in Colorado would be transplanted to a suitable habitat in the immediate area. The cactus would be transplanted prior to construction under the direction of the USFWS.

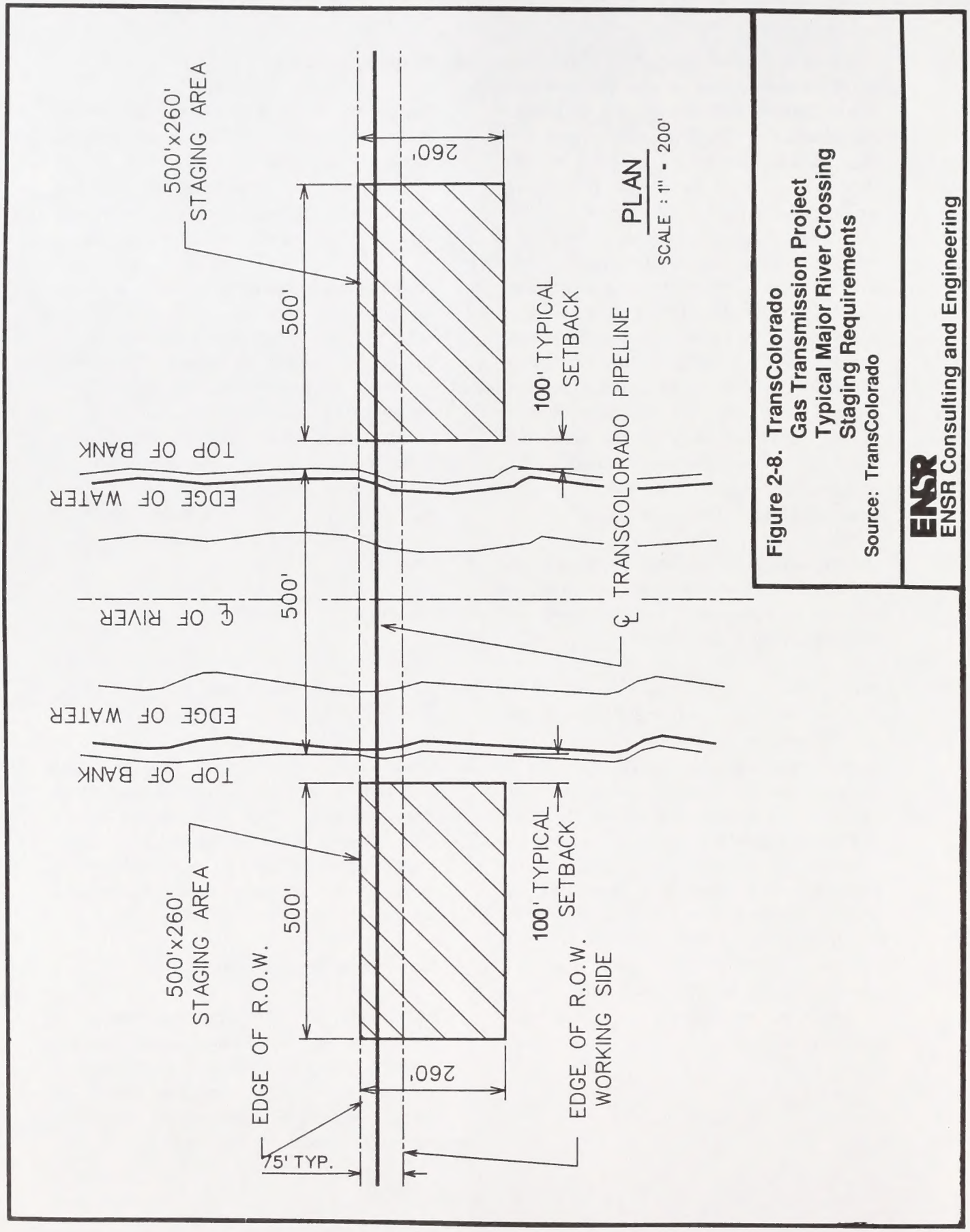


Figure 2-8. TransColorado Gas Transmission Project Typical Major River Crossing Staging Requirements

Source: TransColorado

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Cultural Resource Sites Eligible for NRHP

All cultural resource sites eligible for the National Register of Historic Places (NRHP) would be avoided wherever possible by rerouting within the 200-foot-wide inventoried corridor. Of the eligible sites that could not be avoided, it is proposed that approximately 30 percent would be thoroughly excavated. Excavation would include the complete site well beyond the 75-foot construction ROW in sufficient detail to meet the research design criteria. The remaining NRHP-eligible sites that could not be completely avoided would be tested prior to construction and monitored during construction by a Federally-approved archaeologist. Monitoring would also include areas of non-site locations where the alluvial soil deposits indicate a high potential for buried sites. Any features or properties discovered during testing or monitoring of these areas would be treated as directed by the monitoring archaeologist in consultation with the SHPO and the land owner. Treatment could include extensive excavation or simple data recordation. Any extensive cultural deposits encountered would need to excavated, and excavation may have to include cultural deposits of the site outside of the 75-foot construction ROW. This is normally necessary to place the recovered data into a meaningful site interpretive context.

Appendix F in the final EIS explains the proposed treatment of cultural resources in greater detail. A final cultural resource treatment plan will be prepared once the Class III inventory is complete and the data are incorporated into the research design. The research design and proposed treatment plan will be submitted for review and concurrence to Colorado and New Mexico State Historic Preservation Officers (SHPOs), the Advisory Council on Historic Preservation (ACHP), and the FERC during the summer of 1992. If the approved treatment plan for cultural resources is different than that proposed here, additional environmental analysis may be necessary to disclose the differences in impacts. Any additional environmental analysis will be included in the BLM and USFS RODs. The BLM and USFS will not make a decision regarding the project and no RODs or ROW grant will be issued until the SHPO, ACHP, and FERC concur with the treatment plan. The final SHPO concurrence will be included in the BLM and USFS RODs. Implementation of the treatment plan will not begin until the FERC issues its certificate for state and private lands and the BLM issues the BLM/USFS ROW grant for Federal lands.

Paleontological Site Crossings

Of the 19 locations that yielded fossils during a paleontological survey of the draft EIS agency preferred route, 2 have been determined to be of Class I sensitivity (see Chapter 3 for sensitivity criteria). These two Class I localities would be monitored during construction by a qualified paleontologist. If fossils are discovered, a decision would be reached regarding treatment of the fossils prior to resuming construction activities.

The remaining 17 localities that yielded fossils during the survey have been determined to be either Class II or Class III sensitivity. These localities would not be monitored.

TransColorado would cease operations and notify the appropriate land management agency if fossils of scientific value are discovered during construction activities. A qualified paleontologist would then be consulted regarding the disposition of the fossils. The paleontologist would have 48 hours in which to make a determination regarding disposition of any fossils.

Natural Resource Requirements

Natural resources that would be encountered by the Proposed Action are shown in Table 2-4. A

TABLE 2-4

TransColorado Gas Transmission Project
Occurrence of Natural Resources
Proposed Action

Natural Resource Crossings	Units
Paleontological Formations (miles)	19
Oil & Gas Fields (miles)	35
Strippable Coal Fields (miles)	6
Oil Shale (<25 gallons/ton) Formations (miles)	0
Oil Shale (> 25 gallons/ton) Formations (miles)	37
Major Rivers Crossed (number)	5
Major Streams Crossed (number)	5
Minor Streams Crossed (number)	19
Wet Meadow/Hayland (miles)	1.4
Wet Shrublands (miles)	0.2
Forest Wetland (miles)	1.5
Saline/Alkaline Soils (miles)	58
Rocky/Shallow/Wetland Soils (miles)	120
Steep Ascent/Descent Slopes (>15% <40%) (miles)	25
Steep Ascent/Descent Slopes (>40%) (miles)	12
Steep Side Slopes (≥40%) (miles)	0.4
Active Landslide Areas (miles)	3.6
Landslide Deposits (miles)	17.4
Incised Channels (miles)	66
Potentially Active Faults (number)	3
Prime Farmlands (miles)	9
Farmlands of Statewide Importance (miles)	12
Agricultural Lands - All categories (miles)	30
Rangeland (miles)	176
Timber Lands (miles)	29
Pinyon-Juniper (miles)	70
Livestock Allotments (animal unit months [AUMs])	238
Key Deer Range (miles)	121
Key Elk Range (miles)	113
Key Grouse Range (miles)	28
Key Antelope Range (miles)	2

TABLE 2-4 (Continued)

Natural Resource Crossings	Units
Active Raptor nests within 1.0 mile (number)	3
Bald Eagle Winter Range (miles)	77
Potential Black-Footed Ferret Habitat (miles)	60
Threatened and Endangered Plant Habitat (miles)	64
Potential Mexican Spotted Owl Habitat (miles)	10.7
Cultural Resources: Projected sites within 75-foot ROW (number)	199
Cultural Resources: High sensitivity areas (miles)	201
Cultural Resources: Medium sensitivity areas (miles)	58
Visual Contrasts - High (miles)	6
Visual Contrasts - Moderate (miles)	22.3
Irrigation Ditches (number)	21
Major Rail Crossings (number)	2
Federal Highway Crossings (number)	4
State Highway Crossings (number)	7
Solid and Hazardous Waste Generated (cubic yards)	4,360

more detailed description of these resources is presented in Chapter 3, Affected Environment. Natural resources, such as water and minerals, would be needed for construction and testing of the pipeline. These resource requirements are described in the following.

Water would be withdrawn from streams crossed by the pipeline for hydrostatic (pressure) testing of the pipeline. Water would be withdrawn at a rate not to exceed 1,200 to 1,500 gpm (gallons per minute). Table 2-2 lists potential water sources along the TransColorado proposed route. TransColorado has proposed that total appropriations from any one source would not exceed 2 million gallons. The amount of water withdrawn from any one source would be less than 5 percent of the total flow. It is anticipated that pipeline segments would be tested in a sequential order and, therefore, water would be transferred from segment to segment.

Water would be used to control fugitive dust at construction sites. Water tankers would obtain water from sources listed in Table 2-2. Water requirements would be dependent on construction site soil conditions, location, and seasonal conditions. The same constraints would apply to this use as those that apply to hydrostatic testing.

Mineral resources, such as sand and gravel, would be needed for trench padding, gravel surfacing, and for roadway maintenance and repair. TransColorado has estimated that 7,650 cubic yards of imported trench padding material, 2,700 cubic yards of gravel surfacing, and a minimal amount of roadway gravel base would be used during construction. For purposes of comparison, it is assumed that approximately 25 cubic yards of trench padding material would be needed for each pipeline mile.

Typically, trench padding material is produced on-site by separating excavated material. However, in rocky areas imported material would be required. Site-specific studies may indicate imported materials would be needed for construction of compressor station or meter station facilities. TransColorado would also apply surface gravel to these sites. Gravel for roadway repair and maintenance would be applied, if required by Federal, state, or county road departments or other jurisdictional agencies.

Imported mineral materials would be acquired from commercial gravel pits located in the project vicinity. Commercial gravel pits have been identified in Rio Blanco, Garfield, Mesa, Delta, Montezuma, Montrose, La Plata, Archuleta, and San Juan Counties. Borrow pits located on private or agency land may provide some imported materials. Permits or authorizations would be obtained, as needed, to use imported materials.

Facilities Construction

Project facilities needed to support the pipeline include compressor stations, metering stations, block valves, pigging facilities, cathodic stations,and communication systems. Figure 2-1 shows locations of the facilities that would be needed to support the pipeline. Measures to reduce visual impacts of facilities have been included in the Environmental Protection Measures section in Chapter 2. Following is a description of the facilities. Table 2-5 shows pipeline system components and design.

Approximately 306 miles of line pipe, six meter run assemblies, pig launcher/receiver assemblies, block valve assemblies, and seven compressor stations would be shipped into the region via railroad and commercial carrier. Line pipe would be transported on the Rio Grande - Southern Pacific Railroad to commercial storage yards in Rifle, Grand Junction, and Delta/Olathe, Colorado, and by the Santa Fe Railway to Gallup, New Mexico. Heavy equipment would be

TABLE 2-5

TransColorado Gas Transmission Project
Pipeline System Components and Design
Proposed Action

Component	Units or Length	Land Requirements Construction/Operation	Design
Pipeline	306 miles 3 miles	75-ft. ROW/50-ft. ROW 75-ft. ROW/50-ft. ROW	264 miles of 22-inch and 42 miles of 24-inch-diameter pipe 8-inch diameter interconnect pipe
Compressor Stations	7	5-acre site (maximum, each site)	Buried and aboveground pipe, turbine compressors, gas coolers, control building, block valve assembly, pigging (cleaning) apparatus
Electric Service Lines	5.3 miles	50-foot ROW	Standard wood poles (40' to 45' high) - 300 yards new ROW
Meter Stations	6	0.25-acre site	Orifice plate, turbine meter, gas quality measuring equipment, piping and valves
Block Valves	19	Contained within other sites or pipeline ROW	Sectionalizing valves installed at 20-mile intervals
Pigging Facilities (cleaning)		Installed with compressor stations, meter stations, and block valves	Facilities include traps and launchers
Cathodic Stations		Installed with compressor stations or within ROW	Facilities include power source, ground beds, rectifiers, and test leads
Communication System		Constructed at proposed compressor stations or existing sites operated by project partners	Towers, antennas, ancillary facilities

Source: TransColorado POD 1991.

transported by rail or roadways to commercial storage areas or directly to the pipeline ROW. A portion of the construction equipment would be rented locally.

Compressor Station

Six new compressor stations would be constructed and one existing compressor station near DeBeque would be expanded. The six new compressor stations are the Questar-Piceance Creek, WestGas-Meeker, WestGas-Debeque, TransColorado-Olathe, Rocky Mountain-Big Gypsum, and Dolores Alternate 2.

The existing Rocky Mountain Natural Gas compressor that would be expanded is the Rocky Mountain-DeBeque. These compressor sites are shown on Figure 2-1.

The compressor stations would increase the pressure in the pipeline to allow gas to be transported. The compressors would be fueled by natural gas and would be housed in metal buildings with other auxiliary equipment. The total land requirement for each compressor would be 5 acres maximum. Each site would be fenced and the surface would be graveled.

Table 2-6 shows the types of compressors that would be constructed under the Proposed Action and the estimated pollutant volumes that would be emitted at each station. The primary pollutants emitted would be nitrogen oxides (NO_x), carbon monoxide (CO), and hydrocarbons; emission of other criteria pollutants (lead, particulate matter, and sulfur dioxide) would be minimal (below significance levels).

Design and construction of the compressor stations and facilities would be in conformance with DOT regulations and FERC guidelines. Compressor stations would be designed to limit operational noise to 50 decibels-A weighted (dBA) at all occupied residences between 7:00 pm and 7:00 am and 55 dBA during the day. All local permits would be obtained and local agencies would be contacted to coordinate aesthetic and landscaping considerations.

Meter Stations

Six meter stations would be required along the TransColorado proposed route. Meter stations measure the amount of gas being transported through the pipeline. The land requirement for each meter station would be 0.25 acre. The station design would include orifice plate, turbine meter, gas quality measuring equipment, piping, and valves. The locations of proposed meter stations are shown on Figure 2-1.

Design and construction of meter stations would be in compliance with applicable DOT regulations and FERC guidelines as well as other applicable Federal, state, and local laws, rules, and regulations.

Block Valves

Nineteen manually operated block valves would be installed within the pipeline ROW. The maximum spacing between mainline valves would be 20 miles in accordance with DOT requirements. Sectionalizing valves would be installed at 20-mile intervals. The manual block valves would consist of buried, full-bore ANSI 600-ball valves. Block valves would stop the flow of gas in the event of pipeline failure. Gas flow could also be shut down automatically between compressor stations and at gas delivery and receipt points along the pipeline.

Out-of-specification pressure changes would be detected by the gas control center located in Salt Lake City, Utah. In the event of pipeline leaks or ruptures, the gas control center would shut down the compressors through the telemetry system and would dispatch field crews to shut down the manual block valves. The field crews would be

TABLE 2-6

TransColorado Gas Transmission Project
Description of Compressor Stations and Estimates of Pollutants
Proposed Action

Compressor Name and Location	Compressor Type[2] and Horsepower[3]	Estimated Emissions[1]		
		Nitrogen Oxides	Carbon Monoxide	Hydrocarbons[4]
Questar-Piceance[5] MP 0	Centrifugal - 12,390 hp	174 (5.0)	16 (0.4)	8 (0.2)
WestGas-Meeker[6] MP 2.5	Reciprocating - 2,700 hp	57 (1.6)	83 (2.3)	54 (1.6)
Rocky Mtn.-DeBeque[6] MP 40.6	Reciprocating[7] - 2,400 hp	255 (7.3)	32 (0.9)	9 (0.3)
West-Gas-DeBeque[6] MP 48.2	Reciprocating - 5,100 hp	119 (3.4)	193 (5.6)	23 (0.7)
TransColorado-Olathe[5] MP 124.5	Centrifugal - 4,985 hp	75 (2.2)	29 (0.8)	13 (0.4)
Rocky Mtn-Big Gypsum[6] MP 168.5	Reciprocating - 600 hp	64 (1.8)	8 (0.2)	2 (0.1)
Dolores Alternate 2[5] MP 223.3	Reciprocating - 6,264 hp	121 (3.5)	156 (4.4)	60 (1.7)

[1] Emissions reported as tons per year, with values in parentheses as grams per second. Site emissions are based on the compressor engine horsepower for which air quality modeling was performed. Emissions of particulate matter, sulfur dioxide, and lead would be minimal (below significance levels).

[2] Centrifugal compressor engines are turbines.

[3] Horsepower is a maximum for Olathe and Dolores Alternate 2 compressor stations to ensure that maximum predicted NO_x emissions were used to predict project-related NO_2 concentrations at the boundaries of nearby PSD Class I air quality areas (Black Canyon Wilderness and Mesa Verde National Park, respectively). Nominal horsepower ratings (representing routine operating conditions) were used to estimate emissions for the remaining compressor stations, which are not located near designated Class I air quality areas. Nominal horsepower ratings for the Olathe and Dolores compressor stations are 4,750 and 5,400, respectively.

[4] Values are for non-methane hydrocarbons.

[5] Source: Trinity Consultants, Inc. (1992).

[6] Source: TransColorado (1990, 1991).

[7] Rocky Mountain-DeBeque is an existing compressor station consisting of two 600 hp reciprocating engines, to which two additional 600 hp reciprocating engines would be added. One half of the reported emissions would be generated by the additional compressors. Since the addition to the existing Rocky Mountain-DeBeque compressor station would not be a "major modification," the facility would not be required to obtain a Prevention of Significant Deterioration permit.

located in Durango, Cortez, Dolores, Montrose, Grand Junction, Rifle, Meeker, and Rangely. The time required to shut down the manual block valves would be approximately 0.5 hour from the time of detection during usual working hours, and up to 1 hour during off-hours.

Pigging Facilities

Table 2-5 indicates system components for multi-purpose pigging facilities. Pipeline pigs would be used to inspect the integrity of the pipeline wall. The TransColorado pipeline would be operated as a dry natural gas system. Pigging facilities would be used to internally inspect the pipeline for defects or corrosion. Pigging wastes are not anticipated during the operation of the pipeline system.

Cathodic Stations

The pipeline would be protected against corrosion with coating and cathodic protection systems. These systems would be installed within 1 year of the completion of the pipeline. System components are included in Table 2-5.

Communication System

Mobile phones and radios would be used during construction of the pipeline. Radio and/or microwave communication equipment would be installed at the compressor stations.

Infrastructure Requirements

Infrastructure needs for the construction of the pipeline and ancillary facilities would include railroads, roadways, and storage areas. TransColorado has submitted a transportation plan with the March 1991 revised portion of the POD. This plan indicates the intent to grade or improve 199 miles of existing roadways. Specific roads by name or legal description are listed in TransColorado's POD. These roads would include BLM, USFS, and private roads.

Electrical power would be required for the operation of the compressor stations. In most cases, connecting with power distribution lines involves acquisition of less than 0.5 mile of ROW for new facilities. ROW would be approximately 30 feet wide with 40 feet at ROW angles. For the purposes of impact analysis, a 50-foot ROW was used in this EIS. Power to the compressor stations would vary from 220 volts to 480 volts. The power would be supplied on standard wooden poles 40 to 45 feet high. The length of the line would vary from 0.25 mile to 2.5 miles.

The wildfire suppression policy set forth in the fire plan includes an agreement to supply people and equipment on request by the BLM/USFS for wildfire control purposes. Contractors employed by TransColorado would be responsible for suppression costs and damages for all wildfires started as a result of project construction or project employee activities. Contractors would furnish and maintain tools for suppressing wildfires.

Transportation Requirements

Once in the region, equipment and materials would be transported to ROW staging areas on Federal and state highways and county, BLM, USFS, and private roads. Chapter 3, Table 3-10 indicates all state and Federal highways proposed to be used during the construction process. All necessary Federal (including BLM and USFS), state, and county road use permits would be obtained prior to construction. TransColorado would observe all applicable regulations regarding transportation on these roadway systems (e.g., load restrictions, oversized load restrictions). TransColorado would maintain or repair all existing access roads to the preconstruction conditions. Permission to use private roads and any negotiated conditions applicable to this use

would be contained in the individual landowner agreements.

According to TransColorado's transportation plan, no new road construction would be necessary for access to the ROW. Existing roads and the pipeline ROW itself would be used for transportation purposes.

Vehicle trips would be greatest for the first 3.5 weeks of construction, as heavy equipment used during construction is transported to the ROW and stored on the ROW. At the end of construction, this equipment would be removed from the area. Daily vehicle trips on the local transportation system would consist of those vehicles traveling to and from the ROW once per day, and those vehicles requiring more than one round-trip to the ROW.

Work Force Requirements and Schedule

Pipeline construction would take 9 months beginning in April 1993 and ending in December 1993. The pipeline would be constructed by three crews (spreads) working in three separate locations along the pipeline, all at the same time. Three mainline construction spreads would employ an average of 480 workers each with a maximum of 550 persons during peak construction (a 10-week period). In total, approximately 1,440 people would be employed at any one time during the construction phase. Construction employees would work 10-hour shifts 6 days a week. After construction is completed, approximately 20 persons would be employed for the operation of the pipeline and ancillary facilities.

It is anticipated that the majority of construction workers would be based in the more urbanized areas of Grand Junction, Montrose, Farmington, Cortez, and Durango. Pipeline construction workers would be transported by bus from contractor warehouses to construction sites and would be prohibited from using personal vehicles to access the ROW.

Operation and Maintenance

The Piceance, Olathe, and Dolores compressor stations would be operated by remote control from the Salt Lake City, Utah, gas control center. Personnel would monitor the pipeline and control the operations from the main office. The remaining compressor stations would be monitored and operated by the partner who owns it. The pipeline would be marked, in accordance with regulations, with appropriate signs.

Mobile radio and microwave communications would be used for operation and maintenance of the pipeline. Communication facilities would be located at the compressor stations.

Infrastructure needs required for the operation of the pipeline would be minimal. Gas and electric power would be required to operate offices, communication systems, and ancillary pipeline facilities. Transportation needs would include access to the pipeline ROW and ancillary facilities.

Field personnel would make periodic visits for inspection and maintenance to the compressor stations, meter stations, and pigging facilities. Field inspections would be conducted on the pipeline ROW and at the ancillary facilities primarily for routine maintenance, corrosion inspection, and leak surveys. Field crews would also be available for unexpected repairs and emergency procedures.

The entire pipeline would be patrolled in accordance with DOT regulations. Aerial inspections would be conducted by helicopter and would serve to monitor the pipeline conditions and the success of restorative efforts and erosion control. Aerial patrols are intended

to ensure adequate surveillance of the entire pipeline system and timely response to problems and concerns.

Noxious weed control would be completed in accordance with existing regulations and landowner or agency agreements. Measures to control noxious weeds have been included in the Environmental Protection Measures section in Chapter 2. Access for maintenance would be by existing roads and trails, helicopter, or on foot.

Abandonment

The life of the TransColorado pipeline is projected to be 50 years. The projected life may vary as it depends on other gas transportation projects, natural gas supplies, natural gas demand, and prices, among other factors. The pipeline would be abandoned after the termination of its viable life. The pipeline would be purged, cleaned, sealed, and secured. The line would be abandoned in place, while the aboveground facilities would be removed and salvaged. All areas disturbed would be rehabilitated, to the extent possible, to their predisturbed conditions. Abandonment would result in the reversion of the ROW back to the private landowner or controlling agency. Abandonment procedures may vary depending on available technology.

Emergency Response

TransColorado's POD (March 1991) includes a section titled, "Emergency Response Plan." This plan outlines procedures for responding to an emergency, such as fire, explosion, or pipeline rupture. Responsibilities outlined include recordkeeping, rescue response, notification, isolation of damage, repair crew response, and restoration of service. Each operating district would maintain emergency tools and equipment. These would include, but are not limited to, keys, lights, maps, manuals, call lists, and report forms.

If the pipeline control center in Salt Lake City would detect a change in pipeline operating pressure (indicating a potential leak or rupture), the pipeline section where the pressure change was detected would first be shut down between the nearest compressor stations and/or gas receipt or delivery points. Pipeline emergency response crews would then be dispatched to shut block valves to further isolate the affected 20-mile pipeline section (the distance between block valves). TransColorado estimates that ground response time to any particular block valve during summer would be 0.5 hour during working hours, and 1.0 hour during off-hours.

The operating partner employees would be stationed at various locations along the pipeline route to ensure 1- to 1.5-hour response times during winter. However, under adverse weather conditions, response times could be longer. The personnel would be no more than 2 hours in driving time from each other or the pipeline. They would be on call 24 hours per day. The operations headquarters would have a microwave telecommunications network that would enable personnel to monitor the pipeline 24 hours per day. If a problem would arise, the operations center would dispatch personnel to the problem area.

TransColorado would be primarily responsible for shutting down the pipeline and eliminating the gas supply to the leak or rupture point. In the event of a fire, local fire fighting agencies would be primarily responsible for responding to and controlling the fire.

Also included in the POD is a section titled, "The Fire Plan." This plan provides fire prevention and response measures to be employed by any and all employees, contractors, and subcontractors and their employees. Prevention practices would include restrictions on burning and blasting, use of spark arresters, provision of designated safe

smoking areas, and storage areas for flammable substances.

AGENCY PREFERRED ALTERNATIVE

The Agency Preferred Alternative is to allow TransColorado to construct, operate, and maintain the natural gas transmission system as described under the Proposed Action but along a different route in the Norwood and Mancos Valley areas (Figure 2-2). Following is a description of the Agency Preferred Alternative. The description compares the Agency Preferred Alternative to the Proposed Action. As stated in the Introduction to this chapter, the only differences between the Proposed Action and Agency Preferred Alternative occur in the Norwood and Mancos Valley areas.

Under the Agency Preferred Alternative, the pipeline would be 290 miles long. Of this total, 42 miles would be 24-inch diameter pipe and 248 miles would be 22-inch diameter pipe. The maximum design flow would be the same as that described under the Proposed Action (300 MMcfd). Table 2-7 lists the percentage of ownership under private, state, and Federal ownership that would be crossed.

Construction

If the project is approved, the BLM and USFS would issue TransColorado a TUP for construction purposes authorizing disturbance of 25 feet in addition to the permanent ROW grant. The construction ROW, which was used as a basis for impact analysis in this EIS unless otherwise noted, is a total of 75 feet wide.

As explained under the Federal Approval Process and Authorizing Actions section in Chapter 1, disturbance outside the approved construction ROW would require additional TUPs from the affected land manager. All work outside the approved construction ROW would halt, pending issuance of the TUPS. The affected land manager would conduct site-specific environmental analysis to determine whether or not to issue the additional TUPs.

The Agency Preferred Alternative would result in a maximum disturbance of 2,693 acres during construction (including ROW, six new compressor station sites, and six meter station sites). Table 2-7 lists percent of ownership of private, state, and Federal lands that would be crossed, and indicates that 47 percent of the required ROW would be located on Federal lands, 4 percent would be located on state lands, and 49 percent would be located on private lands.

The construction, operation, maintenance, and abandonment processes would be the same as those described for the Proposed Action. Under the Agency Preferred Alternative, the route would parallel other pipelines and utilities for approximately 180 miles, the same distance paralleled by the proposed route.

Pipeline Construction

The general pipeline construction phases that are common to all pipelines include: clearing, grading, excavation, stringing, bending, welding, coating, lowering, backfilling, hydrostatic testing, cleanup, restoration, testing, and commissioning (see Figure 2-3). As under the Proposed Action, the proposed pipeline construction techniques are similar to those of standard pipeline construction methods and would be in conformance with all applicable DOT regulations and FERC guidelines. Also, as under the Proposed Action, equipment and pipeline storage areas would be located on commercially rented areas in cities along the route.

TABLE 2-7

TransColorado Gas Transmission Project
Land Ownership and Parallel Facilities
Agency Preferred Alternative

Item	Units
Length (miles)	290.4
Disturbance (acres)	2,693
Ownership (percent)	
Private	49
BLM	30
Forest Service	17
State	4
Indian Land	<1
Parallel Facilities	
Total Miles	180
Percent	62
Residences within 500 feet of ROW (number)	40
Road Improvements (miles)	183
Existing Compressor Stations (number)	1
Proposed Compressor Stations (number)	6
Proposed Meter Stations (number)	6
Proposed Block Valves (number)	19

TransColorado would not use materials containing PCBs during construction or maintenance of the pipeline. TransColorado would comply with all applicable Federal, state, and local laws and regulations concerning the use, storage, and control of designated hazardous materials.

Clearing and Grading

The clearing, grading, and trenching methods would be the same as those described under the Proposed Action.

Disturbance outside the 50-foot approved ROW for these sections or the 75-foot approved ROW for other sections would require an additional permit (TUP) from the affected land manager. Supplemental environmental analysis would be conducted to determine whether or not to issue the TUP.

Trenching

Trenching would be done as described under the Proposed Action. The Environmental Protection Measures section includes measures to reduce impacts to soils and impacts of trenching across roads, streams, and wetlands.

Hydrostatic Testing

Hydrostatic testing would be done as described under the Proposed Action. Table 2-2 lists hydrostatic water withdrawal sites and hydrostatic water discharge sites.

Cleanup and Restoration

Cleanup and restoration would be done as described under the Proposed Action. An estimated 4,140 cubic yards of solid waste would be generated.

Special Areas Construction

Unstable Slopes

Slopes would be crossed as described under the Proposed Action. Four active landslide areas would be crossed under the Agency Preferred Alternative the same as the Proposed Action. Three locations on the Grand Mesa (same as Proposed Action) have active landslide areas. The other location is the Divide area between West Naturita Creek and Morrison Creek. Chapter 3, Table 3-4, gives a more detailed listing of landslide areas.

Side Slopes

Construction on side slopes would be done as described under the Proposed Action.

Ascent-Descent Slopes

Construction on ascent-descent slopes would be done as described under the Proposed Action. Staging areas for storage of pipe and machinery have not yet been identified. As indicated in the Environmental Protection Measures section, the ROW would be narrowed to 50 feet on the Grand Mesa between MP 74.0 (elevation 8,720 feet) and MP 75.7 (elevation 6,400 feet).

Canyon Crossings

As described under the Proposed Action, where canyon slopes are potentially unstable, geotechnical studies and engineering designs will be done specifically for those areas.

Aboveground Construction

Aboveground construction on the Gilman Gulch section (MP 32) would be accomplished, as described under the Proposed Action.

Roads and Railroad Crossings

As under the Proposed Action, crossings of railroads, interstate highways, state highways, and paved roads would be done by boring. A total of two major railroads, four Federal highways, and five state highways would be crossed. The Environmental Protection Measures section lists special crossing techniques at visually sensitive road crossings.

Irrigation Canal and Ditch Crossings

Irrigation canals and ditches would be crossed, as described under the Proposed Action. A total of 20 irrigation canals would be crossed.

Residential Areas

Crossings in residential areas would be done as described under the Proposed Action.

Agricultural Lands

Agricultural lands would be crossed as described under the Proposed Action.

Buried and Overhead Utility Crossings

Utility crossings would be done as described under the Proposed Action. A total of 11 major transmission lines and 5 major pipelines would be crossed.

River and Stream Crossings

As under the Proposed Action, five major rivers would be crossed. The rivers are the same as those listed for the Proposed Action. The same number of major streams would be crossed under the Agency Preferred Alternative (see Table 2-8). Fifteen cold water fisheries would be crossed. Stream and river crossings would be done as described under the Proposed Action. As indicated under the Proposed Action, exact locations of staging areas for stream and river crossings are not yet known.

Wetland Crossings

Wetland crossings would be done as described under the Proposed Action. Additional measures to protect wetlands are included in the Environmental Protection Measures section.

Staging Areas

As described under the Proposed Action, staging areas would be needed for ascent/descent slope crossings, river crossings, road crossings and canyon crossings. As indicated, locations of staging areas have not yet been identified. Once locations are known, TransColorado would be required to apply for additional permits (TUPs) for these staging areas, and site-specific environmental analysis would be required prior to issuing the TUPs.

Cultural Resource Sites Eligible for NRHP

Crossings of cultural resource sites eligible for the NRHP would be completed, as described under the Proposed Action.

Paleontological Site Crossings

Crossings of Class I paleontological sites would be completed, as described under the Proposed Action.

Natural Resource Requirements

Table 2-9 shows the natural resources that would be encountered by the agency preferred route.

Facilities Construction

Table 2-10 shows pipeline system components and design. As discussed for the Proposed Action, measures to reduce visual impacts from

TABLE 2-8

TransColorado Gas Transmission Project
Perennial Water Crossings - Agency Preferred Alternative

Approximate Milepost	Perennial Water Crossing	Approximate Width Traversed (feet)	Size of Crossing	High Water Quality Streams[1]	Cold Water Fisheries[2]
2.3	Piceance Creek	25	major stream		x
8.5	Willow Creek	5	minor stream		x
25.1	Crystal Creek	140	minor stream		
36.3	Conn Creek	30	minor stream		
44.1	Roan Creek	50	major stream		
47.0	Colorado River	375	major river		
59.0	Plateau Creek	70	major stream		x
108.5	Gunnison River	250	major river		x
108.7	Roubideau Creek	25	minor stream		
113.4	Roubideau Creek	25	minor stream		
146.4	Sheep Creek	15	minor stream		x
153.7	San Miguel River	80	major river		x
158.3	Maverick Draw	50	minor stream		x
160.0	Naturita Creek	40	minor stream		x
183.7	Spectacle Creek	40	minor stream		x
188.0	Morrison Creek	10	minor stream		
189.5	Disappointment Creek	15	minor stream		
210.3	Dolores River	75	major river	x	x
218.0	Lost Canyon Creek	15	minor stream		

TABLE 2-8 (CONTINUED)

Approximate Milepost	Perennial Water Crossing	Approximate Width Traversed (feet)	Size of Crossing	High Water Quality Streams[1]	Cold Water Fisheries[2]
224.2	Chicken Creek	15	minor stream	x	x
225.4	West Mancos River	20	major stream	x	x
228.5	Middle Mancos River	30	major stream	x	x
231.0	East Mancos River	30	minor stream	x	x
250.0	La Plata River	30	minor stream		
254.6	La Plata River	30	minor stream		
255.5	La Plata River	30	minor stream		
257.0	La Plata River	30	minor stream		
259.6	La Plata River	30	minor stream		
260.3	La Plata River	30	minor stream		
260.6	La Plata River	30	minor stream		
278.3	Animas River	150	major river	[3]	x

[1] High Water Quality Streams. Colorado: These streams are included in the High Quality Class II designation. These waters shall be maintained and protected at this existing quality unless lower quality is allowed by the state to accommodate important economic or social development.

[2] Cold Water Fisheries. Colorado: These are waters that 1) currently are capable of sustaining a wide variety of cold water biota, including sensitive species; 2) could sustain such biota for correctable water quality conditions.

[3] The Animas River in New Mexico has been designated as suitable for irrigation, municipal supply, industrial supply, livestock watering, wildlife watering, marginal cold water fishery, warm water fishery, and secondary contact recreation.

TABLE 2-9

TransColorado Gas Transmission Project
Occurrence of Natural Resources
Agency Preferred Alternative

Natural Resource Crossings	Units
Paleontological Formations (miles)	19
Oil and Gas Fields (miles)	34
Strippable Coal (miles)	6
Oil Shale (<25 gallons/ton) Formations (miles)	0
Oil Shale (>25 gallons/ton) Formations (miles)	37
Major Rivers Crossed (number)	5
Major Streams Crossed (number)	5
Minor Streams Crossed (number)	21
Wet Meadow/Hayland (miles)	1.6
Forested Wetland (miles)	1.6
Wet Shrubland Wetland (mile)	0.1
Saline/Alkaline Soils (miles)	42
Rocky/Shallow/Wetland Soils (miles)	114
Steep Ascent/Descent Slopes (>15% <40%) (miles)	23
Steep Ascent/Descent Slopes (≥ 40%) (miles)	5
Steep Side Slopes (≥ 40%) (miles)	0
Active Landslide Areas (miles)	4
Landslide Deposits (miles)	24.2
Incised Channels (miles)	43.7
Potentially Active Faults (number)	3
Prime Farmlands (miles)	9
Farmlands of Statewide Importance (miles)	12
Agricultural Lands - All categories (miles)	29
Rangeland (miles)	179
Timber Land (miles)	23
Pinyon-Juniper (miles)	59
Livestock Allotments (animal unit months [AUMs])	290

TABLE 2-9 (Continued)

Natural Resource Crossings	Units
Key Deer Range (miles)	103
Key Elk Range (miles)	73
Key Grouse Range (miles)	25
Key Antelope Range (miles)	2
Active Raptor Nests within 1.0 mile (number)	4
Bald Eagle Winter Range (miles)	67
Potential Black-Footed Ferret Habitat (miles)	20
Potential Mexican Spotted Owl Habitat (miles)	19
Threatened and Endangered Plant Habitat (miles)	53
Cultural Resources: Projected Sites within 75-foot ROW (number)	277
Cultural Resources: High Sensitivity Areas (miles)	177
Cultural Resources: Medium Sensitivity Areas (miles)	76
Visual Contrasts (High) (miles)	7.3
Visual Contrasts (Moderate) (miles)	14.8
Irrigation Ditches (number)	20
Major Rail Crossings (number)	2
Federal Highway Crossed (number)	4
State Highway Crossed (number)	5
Solid and Hazardous Waste Generated (cubic yards)	4,140

TABLE 2-10

TransColorado Gas Transmission Project
Pipeline System Components and Design
Agency Preferred Alternative

Component	Units or Length	Land Requirements Construction/Operation	Design
Pipeline	290 miles	75-ft. ROW/50-ft. ROW	248 miles of 22-inch and 42 miles of 24-inch-diameter pipe
	3 miles	75-ft. ROW/50-ft. ROW	8-inch diameter pipe
Compressor Stations	7	5-acre site (maximum, each site)	Buried and aboveground pipe, turbine compressors, gas coolers, control building, block valve assembly, pigging (cleaning) apparatus
Electric Service Line	2.5 miles	Olathe Compressor Site	Standard
Electric Service Line	1.75 miles	Redvale Compressor Site	Standard
Meter Stations	6	0.25-acre site	Orifice plate, turbine meter, gas quality measuring equipment, piping and valves
Block Valves	19	Contained within other sites or pipeline ROW	Sectionalizing valves installed at 20-mile intervals
Pigging Facilities (cleaning)		Installed with compressor stations, meter stations, and block valves	Facilities include traps and launchers
Cathodic Stations		Installed with compressor stations or within ROW	Facilities include power source, ground beds, rectifiers, and test leads
Communication System		Constructed at proposed compressor stations or sites operated by project partners	Towers, antennas, ancillary facilities

Source: TransColorado POD 1991.

project facilities have been included in the Environmental Protection Measures section in Chapter 2.

Compressor Stations

As under the Proposed Action, six compressor stations would be constructed and one existing compressor station (Rocky Mountain-DeBeque) would be expanded. The six new compressors are the Questar-Piceance Creek, WestGas-Meeker, WestGas-DeBeque, TransColorado-Olathe, Rocky Mountain-Redvale, and Dolores Alternate 1. These compressor sites are the same as those identified under the Proposed Action except the Rocky Mountain-Redvale and Dolores Alternate 1 would be constructed instead of the Rocky Mountain-Gypsum and Dolores Alternate 2.

Table 2-11 shows the types of compressors that would be constructed under the Agency Preferred Alternative and the estimated pollutant volumes that would be emitted at each station. The primary pollutants emitted would be NO_x, CO, and hydrocarbons; emissions of other criteria pollutants (lead, particulate matter, and sulfur dioxide) would be minimal (below significance levels).

Design and construction of the compressor stations and facilities would be in conformance with DOT regulations and FERC guidelines. Compressor stations would be designed to limit operational noise to 50 dBA at all occupied residences between 7:00 pm and 7:00 am, and 55 dBA during the day.

Meter stations, block valves, pigging facilities, cathodic stations, and communication systems would be installed as described under the Proposed Action. Locations of these facilities are shown on Figure 2-2.

Infrastructure Requirements

Infrastructure requirements would be the same as those described under the Proposed Action except that 183 miles of existing roadways would be graded or improved as opposed to 199 miles under the Proposed Action, and a powerline would have to be constructed to the Redvale compressor station. The powerline would diverge from an existing electrical service line located approximately 1 mile southwest of Redvale, and would extend 1.75 miles to the Redvale compressor station.

Transportation Requirements

Transportation requirements would be the same as those described under the Proposed Action. State and Federal haul roads are shown on Table 3-10, Chapter 3.

Work Force Requirements and Schedule

The work force requirements and schedule would be the same as those described under the Proposed Action.

Operation and Maintenance

Operation and maintenance would be the same as that described under the Proposed Action. Measures to control noxious weeds have been included in the Environmental Protection Measures section.

Abandonment

Abandonment would be the same as that described under the Proposed Action.

TABLE 2-11

TransColorado Gas Transmission Project
Description of Compressor Stations and Estimates of Pollutants
Agency Preferred Alternative

Compressor Name and Location	Compressor Type[2] and Horsepower[3]	Estimated Emissions[1]		
		Nitrogen Oxides	Carbon Monoxide	Hydrocarbons[4]
Questar-Piceance[5] MP 0	Centrifugal - 12,390 hp	174 (5.0)	16 (0.4)	8 (0.2)
WestGas-Meeker[6] MP 2.5	Reciprocating - 2,700 hp	57 (1.6)	83 (2.4)	54 (1.6)
Rocky Mtn.-DeBeque[6] MP 40.6	Reciprocating - 2,400 hp	255 (7.3)	32 (0.9)	9 (0.3)
WestGas-DeBeque[6] MP 48.2	Reciprocating[7] - 5,100 hp	119 (3.4)	193 (5.6)	23 (0.7)
TransColorado-Olathe[5] MP 124.5	Centrifugal - 4,985 hp	75 (2.2)	29 (0.8)	13 (0.4)
Rocky Mtn-Redvale[6] MP 160.6	Reciprocating - 800 hp	50 (1.4)	5 (0.1)	4 (0.1)
Dolores Alternate 1[5] MP 203.5	Reciprocating - 6,456 hp	139 (4.0)	197 (5.7)	91 (2.6)

[1] Emissions reported as tons per year, with values in parentheses as grams per second. Site emissions are based on compressor engine horsepower for which air quality modeling was performed. Emissions of particulate matter, sulfur dioxide, and lead would be minimal (below significance levels).

[2] Centrifugal compressor engines are turbines.

[3] Horsepower is a maximum for Olathe and Dolores Alternate 1 compressor stations to ensure that maximum predicted NO_x emissions were used to predict project-related NO_2 concentrations at the boundaries of nearby PSD Class I air quality areas (Black Canyon Wilderness and Mesa Verde National Park, respectively). Nominal horsepower ratings (representing routine operating conditions) were used to estimate emissions for the remaining compressor stations, which are not located near designated Class I air quality areas. Nominal horsepower ratings for the Olathe and Dolores compressor stations are 4,750 and 5,600, respectively.

[4] Values are for non-methane hydrocarbons.

[5] Source: Trinity Consultants (1992).

[6] Source: TransColorado (1990, 1991).

[7] Rocky Mountain-DeBeque is an existing compressor station consisting of two 600 hp reciprocating engines, to which two additional 600 hp reciprocating engines would be added. One half of the reported emissions would be generated by the additional compressors. Since the addition to the existing Rocky Mountain-DeBeque would not be a "major modification," the facility would not be required to obtain a Prevention of Significant Deterioration permit.

Emergency Response

Emergency response procedures would be the same as those described under the Proposed Action.

ENVIRONMENTAL PROTECTION MEASURES

This section lists environmental protection measures that TransColorado would be required to follow on Federal, state, and private lands. These measures would be required under both the Proposed Action and Agency Preferred Alternative. The measures listed in Tables 2-12 and 2-13 were developed by the BLM and USFS for Federal lands. The measures in Table 2-14 were developed by the FERC staff for private and state lands. All measures were considered in analyzing impacts of the TransColorado proposed pipeline. Therefore, additional environmental analysis may need to be conducted prior to granting any waivers to these measures. Tables 2-15 and 2-16 list the areas where seasonal wildlife closures are indicated in Table 2-13 for the Proposed Action and the Agency Preferred Alternative, respectively. Table 2-17 presents National Forest road closures as discussed in Table 2-13. Tables 2-12 through 2-17 have been placed at the end of this chapter. This was done to avoid interrupting the text.

MONITORING AND COMPLIANCE

This section explains the monitoring and compliance activities that would be conducted. TransColorado has agreed to hire environmental inspectors only. The FERC staff would recommend to their commission the monitoring described under FERC Monitoring and Compliance. If approved by the commission, this monitoring would be required for a FERC certificate.

BLM and USFS Monitoring and Compliance

BLM and USFS personnel would work with the environmental inspectors to monitor TransColorado's activities on Federal lands. These employees would represent the Federal authorized officer and would ensure compliance with terms and conditions of the BLM and USFS ROW grant and other Federal authorizing documents.

BLM and USFS would require weekly status reports from the TransColorado environmental inspectors and the FERC monitoring and compliance contractor. These status reports would document TransColorado's compliance with terms and conditions of the ROW grant.

Only authorized BLM and USFS compliance personnel would be authorized to stop construction activities pending instructions from the Federal authorized officer, should they witness or be informed of violations and noncompliance.

FERC Monitoring and Compliance

As stated in Table 2-14, the FERC staff would recommend to their commission that TransColorado hire an independent contractor whose sole function would be to monitor construction and document TransColorado's compliance with the environmental conditions attached to the FERC certificate. This contractor would be in addition to the environmental inspectors that TransColorado has agreed to hire and would have to be approved by the FERC. The monitoring and compliance contractor would

employ one environmental monitor per construction spread and would provide weekly status reports to the FERC staff, TransColorado, and other Federal agencies that request these reports.

TransColorado Monitoring and Compliance

TransColorado has agreed to hire environmental inspectors to monitor daily preconstruction, construction, postconstruction, and restoration activities on Federal, state, and private lands. These environmental inspectors would ensure compliance with all terms and conditions of the BLM/USFS ROW grant, FERC certificate of public convenience and necessity, U.S. Corps of Engineers (COE) Nationwide Permit, and private landowner easements.

A minimum of one environmental inspector would be hired per spread. On Federal lands, the environmental inspectors would interact directly with the COE, BLM, and USFS compliance personnel to ensure compliance. On state and private lands, the environmental inspectors would interact directly with private landowners, FERC, Soil and Water Conservation Districts, and state representatives to ensure compliance.

Monitoring in the field would require environmental inspectors to make some judgments regarding the application of terms and conditions of the authorizing documents. This would include making determinations regarding noncompliance and any necessary corrective actions. Working with the framework of the construction team, BLM, and USFS, the environmental inspectors, would ensure that all necessary correction actions were properly initiated in a timely fashion.

The inspectors would report all violations and occurrences of noncompliance with the terms and conditions of the authorizing documents to TransColorado's chief construction inspector, who would have the authority to stop construction activities.

Environmental inspectors would have peer status with other inspectors and would be integrated into the construction supervision team for the project. The responsibilities and duties of the environmental inspectors would include, but not be limited to, the following:

1. Monitoring on-site, day-to-day construction activities on Federal, state, and private lands to ensure compliance with environmental protection measures contained in grants, permits, certificates, and private landowner easements.

2. Preparing weekly activity reports documenting problems, violations, and noncompliance, and recommending solutions.

3. Submitting weekly activity reports to BLM/USFS and TransColorado compliance personnel.

4. Ensuring that all permits, certificates, easements, and other documents containing environmental requirements are provided to the construction contractors. Assisting contractors by reinforcing their knowledge of all appropriate environmental conditions.

5. Directing actions developed by the Federal authorized officer and/or FERC to correct violations of grants, certificates, permits, and private landowner easements and agreements.

6. Ensuring that all necessary corrective action is begun within the time frames specified by the Federal authorized officer and/or FERC.

7. Maintaining open communications with TransColorado personnel responsible for monitoring construction contractor performance and permit compliance, including prompt reporting to TransColorado of any suspected or known violations.

8. Identifying stabilization needs in all areas.

9. Supervising the marking of surface or subsurface drainage and irrigation system locations.

10. Performing or monitoring appropriate tests of subsoil and topsoil to determine the extent of compaction across the disturbed ROW.

11. Approving any imported soils for use as fill and/or additional cover material.

12. Monitoring the topsoil and replacement to verify the profile is restored as requested or required.

13. Documenting the revegetation program in conjunction with TransColorado's revegetation efforts.

14. Developing a program to monitor crop productivity for 2 years after completion of construction to determine the success of restoration and the need for additional restoration where restoration is unsuccessful.

NO ACTION ALTERNATIVE

Under the No Action Alternative, the TransColorado natural gas pipeline system would not be constructed. As described in Chapter 1, there are many current incentives for natural gas transmission companies to develop proposals to ship gas from the Rocky Mountain Region to urban centers in California and the Midwest. It is anticipated that an alternative pipeline proposal would be presented to permitting agencies if the TransColorado pipeline is not built. Future demand for natural gas is subject to many factors, as outlined in the gas market discussion in Chapter 1. It is expected that the shut-in natural gas production capacity, combined with incentives from the Federal non-conventional energy program, would stimulate a proposal similar to that of TransColorado's or a pipeline system such as the CIG, Uinta Basin Lateral, or Questar Main Line 58 Upgrade proposals would take gas from a portion of TransColorado's proposed service area. If the TransColorado pipeline were not constructed, it is expected that natural gas drilling in the Piceance Basin of northwestern Colorado would continue, but at a lower rate. Construction of gathering system pipelines and compressor stations would likely be delayed until a regional sales pipeline becomes available. The expected consequences of not building the TransColorado pipeline to natural resources and to natural gas producers in the Piceance and San Juan Basins are described under No Action in Chapter 4.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Energy Conservation

Energy conservation offers opportunities for reduction of overall energy demand, and, in fact, energy conservation has been implemented in varying degrees and with varying amounts of success by utilities and industries throughout the country. However, because of increasing demands for cleaner air, natural gas is being used as a substitute for other hydrocarbon fuels. Even

though active conservation could reduce overall energy demand, natural gas is expected to contribute a greater share to the overall energy mix in the foreseeable future. As a result, the demand for natural gas is not expected to be greatly diminished by any future government actions to reduce energy consumption.

Pipeline System Alternatives

A pipeline system alternative is defined as an alternative that would meet the stated objectives of the proposed project but would make use of an existing or modified pipeline delivery system. This would make it unnecessary to construct all or part of the proposed project. Although some modifications to an existing pipeline system, such as the addition of compression or pipeline loop, may be required to increase the capacity, the environmental impact associated with these additions could be less than the environmental impact associated with construction of an entirely new pipeline. The Northwest Pipeline Corporation system was evaluated as such an alternative to the TransColorado project.

The Northwest System Alternative would involve the transportation of approximately 300 MMcfd of gas from Meeker, Colorado, to Bloomfield, New Mexico. Specifically, this would entail the deliveries of gas by Questar (155 MMcfd), WestGas (70 MMcfd), and Rocky Mountain (75 MMcfd) to Northwest at various interconnections. To accomplish these deliveries, Questar would be required to construct its proposed Piceance Creek Compressor Station and to upgrade an existing 27.3 miles of 14-inch-diameter pipe between Piceance Creek and Divide Creek. WestGas would need to construct 54.4 miles of 10-inch-diameter pipe from DeBeque to West Douglas Creek, 14.2 miles of 8-inch-diameter pipe from Meeker to Black Sulphur, and to install 2,500 horsepower (hp) of compression at DeBeque and 1,200 hp of compression at Meeker. Rocky Mountain would be required to construct 82.8 miles of 10-inch-diameter pipeline loop from Colbran to the Piceance Creek Compressor Station, upgrade 86.3 miles of 10-inch-diameter pipe between Slick Rock and Read Junction, and to install 3,600 hp of compression at Piceance Creek, 1,800 hp of compression at Colbran, and 600 hp of compression at DeBeque.

For Northwest to transport the approximate 300 MMcfd to Bloomfield, New Mexico, Northwest would be required to construct 303 miles of 30-inch pipeline looping on its mainline from the Rangely Compressor Station to Ignacio, Colorado, 48.3 miles of 20-inch pipeline looping on its Piceance Lateral from its Rangely Compressor Station to the Piceance Creek interconnect with Questar, and to install 11,000 hp of compression at its La Plata Compressor Station.

In summary, the Northwest Pipeline System Alternative would require the construction of approximately 503 miles of pipeline compared to the 306 miles proposed by TransColorado, although most of the system alternative pipe would be looping. It should be noted that the 306 miles of pipe required to loop Northwest's mainline may be increased because two probable route variations would be necessary, one in order to avoid Arches National Park and Moab Canyon, and the other to avoid the planned Ridges Basin Reservoir in La Plata County, Colorado. In addition to the pipe, this system alternative would require the installation of approximately 32,490 hp of compression compared to the 32,140 hp proposed for the TransColorado project, and all companies would be required to construct new meter stations and measuring facilities.

Due to the additional facilities required to construct the Northwest System Alternative and the fact that it does not offer any significant environmental advantage over the TransColorado project, this alternative has been eliminated from further consideration.

Two natural gas pipelines (CIG Uinta Basin Lateral, Questar Main Line No. 58 Upgrade) have recently been proposed to transport Piceance Basin natural gas to California and midwestern markets. These two pipelines would provide increased transportation capacity out of the northern portion of TransColorado's gas supply area but not out of the southern portion of the Piceance Basin or the Paradox Basin in southwestern Colorado. Therefore, these pipelines do not represent full system alternatives to the TransColorado project.

End Use Pipeline Alternatives

An end use pipeline alternative is defined as an existing or proposed pipeline system that could potentially deliver the equivalent of 300 MMcfd of natural gas proposed for transport by TransColorado to the same end use market areas in Southern California and the Midwest. The gas supplies for these projects are not the same as those identified for TransColorado, and these end use pipeline alternatives are considered in the EIS only on the basis that they meet the end use purpose of the TransColorado project. End use pipeline alternatives were identified for discussion in this final EIS based on the following factors:

- The pipeline system is capable of transporting the 300 MMcfd, which is the proposed capacity of the TransColorado system.
- The pipeline system meets the end use purpose of the TransColorado pipeline (deliveries to Southern California or the Midwest).
- The pipeline system must be operating, be under construction, or have filed a currently active application for certification with the FERC.

The Kern River pipeline from Opal, Wyoming, to Bakersfield, California, which was recently completed, is the only pipeline system that could meet all of the criteria. However, the carrying capacity of the Kern River pipeline is already completely subscribed. In order for Kern River to transport the 300 MMcfd proposed for the TransColorado system, an undetermined amount of additional pipeline and compression facilities would be needed.

For purposes of comparison, the combination of the TransColorado pipeline with the Transwestern Mainline System Expansion would require approximately 598 miles of new pipeline; the combination of TransColorado with the El Paso Mainline and San Juan Triangle system would require 533 miles of new pipeline. These combined facility requirements are less than the 762 miles of new pipeline being constructed for the Kern River system. Although the additional facility requirements to carry TransColorado gas or the Kern River system are unknown, it is expected that the land requirements for these additional Kern River facilities would likely equal or exceed those needed to construct the TransColorado system. Because of existing capacity constraints on the Kern River system, and because an expansion of the Kern River system does not appear to offer a significant environmental advantage over the TransColorado project, this alternative has been eliminated from further consideration.

SUMMARY OF IMPACTS

Table 2-18 compares the impacts of the Proposed Action with those of the Agency Preferred Alternative.

TABLE 2-12

TransColorado Gas Transmission Project
Environmental Protection Measures
for Federal Lands

The measures listed in this table will be attached as written to the BLM and USFS ROW grant. These measures are required unless waived by the Federal authorized officer or Federal project inspector and, where applicable, the Federal line manager. Prior to issuing a waiver, the affected land management agency will conduct an environmental review to determine if additional analysis is needed.

AIR QUALITY

1. Federal, state, and local air quality emission standards and regulations will be met.

2. Water, or other means, to control dust will be provided in accordance with Federal, local, or state requirements.

3. Construction and operation equipment will be properly maintained to reduce emissions.

4. Dust abatement procedures shall be used at all times when working within 500 feet of the power transmission line ROW, unless waived by the owner/operator of the power line.

5. Compressor stations will be designed to limit noise levels to 50 dBA at all occupied residences between 7:00 p.m. and 7:00 a.m., and 55 dBA during the day.

TOPOGRAPHY

1. In areas of unstable slopes, active faults, and locations of mines, proper mitigation will be developed (e.g., alternate locations, stronger pipe, installation of monitoring equipment, installation of block valves to isolate area, use of low-density backfill to allow for pipe movement, subsurface drainage, and buttressing) from geotechnical investigations completed during engineering of the pipeline.

2. Site-specific geotechnical evaluations of compressor sites will be conducted prior to construction to determine foundation requirements.

3. Fault crossings will be assessed and site-specific mitigation measures will be developed (i.e., thicker pipe walls, shut-off valves, and low-density backfill) to maintain safety of pipeline.

MINERALS

1. To ensure that the owner of coal lease C-029889 does not lose the potential to mine the coal under the pipeline, a condition will be attached to the ROW grant. Basically, if the mine plan is required to be modified to provide subsidence protection for the pipeline, the ROW holder will be required to make changes in the location, operation, or design of the pipeline such that the mine plan can proceed without modification. This condition will be spelled out in greater detail in the ROW grant.

TABLE 2-12 (Continued)

SURFACE WATER QUALITY

General Construction

1. Sediment filter devices will be installed, inspected, and repaired to minimize sedimentation where needed or required.

2. Proper riprap application or other techniques will be used to stabilize stream banks where needed or required.

3. Proper water management techniques will be used to prevent silt from entering water channels.

4. Natural drainage will be protected and restored to original contour and patterns to reclaim site.

5. Drainage structures will be installed as necessary to maintain natural surface drainage.

6. Sediment filter devices will be maintained at base of slopes located adjacent to streams until ROW revegetation is complete.

7. The pipeline will be located at least 50 feet from springs unless waived by the affected line manager and the authorized officer.

8. Exact locations of water wells will be determined prior to construction and the pipeline rerouted to maintain a minimum of 50 feet of clearance from the well.

9. Should a water supply well or spring be adversely affected during construction, an emergency source of potable water will be provided until TransColorado has restored the system. Such repairs will be made immediately following construction in that immediate area.

10. In narrow and deep channels with a flat bottom and little likelihood of further incision, 4-foot depth of pipe burial will be extended laterally from the channel center line a total distance of 3 times the channel depth. The side walls of the cut in the channel bank will be laid back at an angle of 1.5:1 (horizontal:vertical).

11. In deeply incised channels (V-notched cross-section) pipe will be buried 6 feet below channel bed; depth of burial will be extended laterally from the channel center line a total distance of 3 times existing channel depth. The side walls of the cut in the channel bank will be laid back to a slope of 1.5:1.

12. To protect groundwater from accidental fuel spills and contamination, no vehicles will be fueled within a 200-foot radius of all private wells and a 400-foot radius of all municipal water wells.

13. USFWS, the State Fish and Game Departments, and EPA will be consulted regarding withdrawal and disposal of hydrostatic test water.

14. No dredged or fill material will be discharged in the proximity of a public water supply intake (municipal watersheds).

TABLE 2-12 (Continued)

15. A spill prevention and countermeasure plan will be included in the construction contract specifications.

Stream Crossings

1. Staging areas will be located at least 100 feet from stream bank on BLM and on USFS lands to maintain buffer zone and avoid water pollution unless waived by the affected line manager and the authorized officer due to topographic restrictions.

2. No storage of fuels or petroleum products will be allowed within 100 feet of any stream bank to avoid water pollution.

3. Perennial stream crossings will be constructed during the low water period or as approved by the authorized officer.

4. State-issued stream crossing permits will be obtained, if required.

5. Section 401 water quality certification waiver will be obtained if required.

6. Stream crossing will be constructed perpendicular to the channel as engineering and routing conditions permit to minimize length of disturbance.

7. Stream banks will be backfilled as close as possible to original contour, using gravel or riprap, if necessary.

8. Construction equipment in flowing streams will be limited to that needed to construct the stream crossing. Other construction equipment will cross streams on culverts or portable bridges to reduce sedimentation and bank degradation.

9. Minor perennial stream crossings (streams less than 10 feet wide) will be completed within 24 hours, if possible.

10. Major stream crossings (streams more than 10 feet but less than 100 feet wide) will be completed within 72 hours, if possible.

11. Site-specific construction plans will be submitted to applicable federal agencies for crossing all rivers wider than 100 feet.

12. Authorities responsible for potable water supplies located within 3 miles downstream will be notified at least 72 hours prior to instream work.

13. State authorities will be notified at least 48 hours prior to commencement of instream trenching or blasting in major stream crossings.

14. Trench breakers, to prevent groundwater migration, will be installed at the pipeline trench entrance and exit of all encountered wetlands and shallow aquifers, including those associated with streams and rivers.

TABLE 2-12 (Continued)

15. Low-water crossings will be constructed so as not to block or restrict the existing channel.

16. Low-water crossings will be rehabilitated using material removed during construction to avoid new borrow areas.

17. Flow of spoil off ROW will be prevented to minimize downstream sedimentation.

18. Stream flow will be maintained to protect fisheries and aquatic habitat during construction of stream crossings.

19. The ROW will be aligned to avoid individual trees, snags, or groups of trees, which are significantly taller than the surrounding trees or which are located in an otherwise treeless area. In riparian zones where the riparian woodland consists of scattered old cottonwoods with an understory of seedling or sapling cottonwoods, the ROW will be aligned to remove the smallest possible number of old cottonwoods, with avoidance being preferable.

20. Irrigation ditches and canals will be periodically monitored for two seasons after construction to ensure the integrity of the ditch and canal banks.

21. All permanently lined irrigation ditches and canals will be bored unless waived by the authorized officer and irrigation company.

22. Mudboards will be installed to provide a working surface for equipment on unstable areas as determined by the authorized officer.

23. On streams less than 10 feet wide and considered an important fishery, the dry ditch method of construction will be used using flume pipe.

24. Rock waterways may be constructed for bank stabilization where high seasonal flows are expected. Only one cubic yard of material per running foot will be placed below the ordinary high water mark. This activity would require approval by the Corps under a Nationwide permit, a regional bank stabilization permit, or an individual permit.

25. Major stream crossings will be by the open-cut trench method utilizing tracked backhoes.

26. Abandoned water diversions will be plugged and filled to prevent trapping fish.

27. Streambed sediment at the Dolores and San Miguel River crossings in Colorado will be tested for mine waste sediment contamination. If contaminants are found, a site-specific mitigation plan to reduce or prevent re-suspension of contaminated sediments will be prepared and submitted to the authorized officer. Excavated sediments that are found to be contaminated will be disposed off-site in accordance with all local, state, and Federal regulations.

28. Streambed sediment at the La Plata and Animas River crossings in New Mexico will be tested for polycyclic aromatic hydrocarbons (PAH). Sampling and analytical testing methods will be reviewed and approved by the USFWS New Mexico Field Office and COE prior to implementing

TABLE 2-12 (Continued)

the sampling program. If contaminants are found, TransColorado will initiate discussions with the USFWS to develop site-specific protection measures.

29. The pipeline will be buried below the maximum estimated scour depth of a 100-year flood at all stream crossings.

30. Pipeline protection measures will be taken where erosional processes over time reduce pipeline flood protection.

31. All aboveground facilities will be located outside of 100-year floodplains.

32. Major storage yards used during construction will be located outside of 100-year floodplains.

Water Use

1. Water withdrawal permits will be obtained for hydrostatic testing and dust control to protect water rights.

2. Proper intake procedures will be used to prevent entrainment of fish and maintain flow rates in source streams.

3. Discharge permits (e.g., local, state, NPDES) will be obtained for hydrostatic test water disposal.

4. Hydrostatic test water will be sampled during discharge and treated, if necessary, in accordance with permit to avoid pollution. Hydrostatic testing water in New Mexico will be tested for volatile compounds and metallic particles. Testing and treatment methods will be reviewed by the USFWS New Mexico Field Office prior to the return of any testing water to the rivers in New Mexico.

5. Dispersion devices or containment structures will be used when discharging test water to avoid erosion.

6. No more than 5 percent of current stream flow will be withdrawn from any source.

7. Hydrostatic test water will not be discharged into HQ1 or HQ2 streams.

WETLANDS

1. Wetland areas will be avoided to maximum extent possible

2. Staging areas will be located at least 100 feet from wetland edge 100 feet on BLM and USFS lands to maintain buffer zone and avoid water pollution unless waived by the affected land manager and the authorized officer due to topographic restrictions.

3. Petroleum products will not be stored within 100 feet of wetlands to avoid water pollution.

TABLE 2-12 (Continued)

4. Construction of above ground facilities will not be permitted in Federally delineated wetlands and all areas located in 100-year floodplains.

5. Sediment filter devices will be installed to prevent spoil drift and sedimentation where needed and required.

6. State-issued wetland crossing permit will be obtained, if required.

7. Construction ROW in wetland crossings will be less than 75 feet wide to minimize disturbance.

8. Proper clearing techniques will be utilized, leaving roots in place to maintain stability of soils.

9. Wide-track or balloon-tire construction equipment (or proper equipment pads) will be utilized to minimize disturbance.

10. No fertilizer or lime will be used in reclamation activities to prevent eutrophication of wetlands.

11. Soil, rock, tree stumps, or brush riprap will not be used to stabilize ROW to avoid altering the substrate.

12. Sediment filter devices will be installed and maintained at the base of all slopes adjacent to wetlands after construction.

13. Trees and/or native woody vegetation will be replanted in disturbed riparian areas to minimize visual intrusions.

14. Native herbaceous and woody plant species will be monitored to ensure they permanently revegetate.

15. Proper construction techniques will be used to prevent silt from flowing into wetlands.

16. ROW will be aligned to avoid beaver ponds or artificial ponds.

17. Agreements with livestock permittees will be developed to provide short-term protection of stream banks from livestock.

18. Construction across narrow wetlands (<200 feet) will consist of using a work pad (mud board) for the equipment, and the pipe will be placed as though it were on dry ground.

19. Construction across wide wetlands (>200 feet) will consist of laying pre-fabricated sections of the pipe into the trench, utilizing flotation devices.

20. All disturbed wetlands will be restored to original contours. Disturbed areas will be limited to the minimum necessary to construct the pipeline. In jurisdictional wetlands, the top 6 to 12 inches of the trench will be backfilled with topsoil from the trench, and any exposed slopes and streambanks will be stabilized immediately upon completion of the utility line.

TABLE 2-12 (Continued)

SOILS

1. Topsoils will be stripped from disturbed areas to a depth of 12 inches or to a depth specified by the land managing agency. The land managing agency may also specify the width of topsoil to be stripped, but the minimum width should encompass the area over the trench and under the subsoil spoil pile.

2. On saline soils (shale badlands) the top 6 inches of soil over the area to be excavated will be stripped, windrowed, and replaced after construction to encourage revegetation by native seeds present in the topsoil.

3. Steep slopes will be graded properly to minimize erosion.

4. Cuts and fills will be minimized to reduce the amount of exposed soils.

5. Proper blasting techniques will be used to aid in safety and minimize disturbance.

6. Proper trenching techniques will be used to minimize disturbance.

7. Construction restrictions during wet weather (temporary shutdown) will be followed to avoid road and site disturbance (ruts 4 inches or greater).

8. Cut and fill will not be used unless side slopes exceed 3 percent to minimize soil exposure and erosion.

9. Proper backfilling with compaction and contouring will be done to aid in site reclamation.

10. Backfill will be mounded over trench approximately 0.5 foot to account for subsidence unless otherwise requested by the authorized officer.

11. Topsoil replacement will be performed over entire disturbed area, sufficient for refilling and mounding.

12. Either temporary or permanent erosion control measures shall be initiated within 10 days after the trench is backfilled to aid in site stabilization.

13. Water bars shall drain away from disturbed area and begin and end in vegetation or rock.

14. Excess or unsuitable materials will be disposed of at approved locations.

15. Permanent water bars will be constructed on all slopes to help control runoff. Spacing will be as follows or as directed by the affected line manager or authorized officer.

TABLE 2-12 (Continued)

Slope (%)	Spacing
0 to 2	120 feet
2 to 5	100 feet
5 to 10	75 feet
10 to 20	50 feet
20 +	30 feet

16. Sediment barriers will be installed and maintained at the base of slopes located adjacent to road crossings until ROW revegetation is complete, or as directed by the authorized officer.

17. Noxious weed-free sediment barriers will be installed at stream, river, and wetland crossings to minimize sedimentation.

18. Trench breakers will be constructed on all slopes that drain into perennial streams or wetlands or onto improved roads to prevent the channeling of runoff or the migration of water along the trench. The trench breakers should be constructed at the same spacing as permanent water bars. Trench breakers should also be constructed immediately downslope of any location where groundwater could enter and migrate along the trench at any time of year.

19. Topsoil will not be used for the construction of trench breakers.

20. Snow will not be mixed with fill or topsoil during construction to avoid soil losses.

21. Compacted soils in agricultural areas will be relieved so that bulk density of soils on ROW approximates that of soils on adjacent undisturbed agricultural areas to maintain soil productivity.

22. Compacted soil conditions will be relieved before topsoil is replaced.

23. Topsoil will not be redistributed if the ground or topsoil is frozen.

24. Rocks on ROW will be removed to approximate pre-construction conditions.

25. Any blasting near the power transmission line ROW shall include blasting mats or berms so that flyrock or debris will not damage the transmission facilities. Utilities shall be notified prior to all blasting in the ROW.

SOLID WASTE

1. Construction sites will be maintained in a sanitary condition.

2. Waste will be disposed of at an authorized disposal site.

3. A litter policing program will be implemented to avoid litter and visual impacts.

TABLE 2-12 (Continued)

VEGETATION

1. Appropriate clearing techniques will be utilized to preserve roots, stockpile or dispose of vegetation wastes to maintain stability of site, and provide erosion control.

2. Construction and reclamation bond will be provided to ensure reclamation.

3. Non-linear ROW techniques (feathering) will be used to minimize visual impacts in areas as determined by the authorized officer.

4. Native species will be incorporated as practical in the reseeding mixture.

5. The SCS or the affected land management agency will be included in reclamation planning for site-specific information (e.g., noxious weed control, temporary erosion control, and the optimal time for seeding.

6. Seedbed preparation will be conducted to 3- to 4-inch depth to enhance revegetation (scarifying, tilling, harrowing).

7. Seeding will be conducted during the normal seeding season with proper seed mixture and techniques (certified seeds, proper seeding, and amount). TransColorado will meet with each field office to develop site-specific seeding plans prior to commencing construction. The specific seed mixtures will be included in the plan of development.

8. Approved mulch application will be used in sensitive areas (dry, sandy, steep slopes) to control erosion, as directed by the affected line manager or authorized officer.

9. Where wood chips are used as mulch, topdress will be with nitrogen at rates specified by the authorized officer.

10. Thatching or fiber blankets will be used on stream banks and areas of high erosion potential to control erosion, if needed.

11. Special land preparation will be accomplished on "critical areas" to control erosion and enhance revegetation.

12. Continuing revegetation efforts will be provided to ensure adequate cover until vegetation is established.

13. Procedures for application of herbicides, pesticides, and fertilizers will be identified where needed.

14. Cleared vegetation will be disposed of as directed by the authorized officer.

15. Seed will be used within 12 months of testing to assure seed viability.

16. Seed will be drilled, where feasible, to enhance germination.

TABLE 2-12 (Continued)

17. If broadcast or hydroseeding methods are used, seeding rates will be double the recommended seeding rates.

18. Inspection will occur after first and second growing seasons to determine need for further restoration.

19. Revegetation success will be monitored for the life of the project. Problem areas will receive additional revegetation efforts.

20. Noxious weed control measures will be implemented on the ROW for at least 5 years after construction.

21. Mulch, when used, will be anchored immediately after placing to minimize loss by wind and water.

22. Construction vehicles must arrive at the site in a clean and weed free condition.

23. Fertilizer will be used to enhance vegetation where recommended.

FORESTRY

1. Merchantable timber will be purchased by TransColorado.

2. Unmerchantable timber may be hauled off site or scattered on the ROW, as directed by the authorized officer.

3. If timber is scattered, it shall be done after seeding.

4. Unmerchantable timber may be left on the ROW as a barrier to vehicular traffic and to impede erosion.

5. Trees 3 inches in diameter or larger at ground level within the ROW will be cut and not pushed over except in the actual trench where stumps will be pulled during trenching.

6. Trees hung up during felling will be put on the ground immediately as a safety measure.

LIVESTOCK GRAZING

1. Grazing deferment plans may be developed with landowners and grazing permittees to minimize grazing disturbance until ROW revegetation is complete.

2. All damaged livestock facilities (fences, water sources) will be repaired to landowner's satisfaction. Temporary fences will be installed when necessary, to prevent livestock movement across fences temporarily removed for construction.

3. Compensation or temporary measures will be provided for any critical facilities (such as watering sites) that are disrupted during the construction and restoration process.

TABLE 2-12 (Continued)

4. Fences or other suitable barriers will be built to replace natural livestock barriers that would be altered or removed by pipeline construction.

WILDLIFE

1. Seasonal closures will be observed for elk, deer, antelope, sage grouse, heron, and other specified species unless waived by the authorized officer.
2. All non-essential access roads would be closed along the operational ROW to minimize disturbance impacts to wildlife.
3. A nesting raptor survey will be conducted prior to construction.

THREATENED OR ENDANGERED SPECIES

1. Construction will be restricted in key bald eagle wintering areas between November 15 and April 15, unless waived or modified by the authorized officer.
2. Construction near active (listed proposed and candidate species) raptor nests will be restricted between February 1 and August 15 (distance restrictions and dates vary with raptor species) unless waived or modified by the authorized officer.
3. Site-specific mitigation plans will be developed with the U.S. Fish and Wildlife Service for any impacted threatened or endangered species. Twenty individuals of Uinta Basin Hookless Cactus that are removed by construction will be transplanted to suitable habitat in the immediate area. Any depletions of water from occupied habitat for listed fishes would be mitigated by paying a one time fee for every acre foot of depletion in accordance with current USFWS guidelines.
4. The construction ROW will be aligned to avoid identified bald eagle winter roost trees.
5. Pipeline maintenance will be scheduled to avoid crucial bald eagle and raptor use periods.
6. Emergency maintenance in crucial bald eagle or raptor areas will require notification of the applicable land management agency, the USFWS, and the CDOW or the New Mexico Game and Fish Department.
7. Stream and river crossings in any occupied threatened and endangered fish habitat would be completed when the streams are at base flow levels. The preferred dates for crossing the Colorado, Gunnison, La Plata, and Animas Rivers are between September 1 and October 15.
8. A study will be designed and completed to document the impact of construction of pipeline crossings on water quality and fish in the Animas and La Plata Rivers. Studies will be coordinated with the USFWS in Albuquerque. The first step in the studies will be to test sediments at the crossing locations for PAH.

TABLE 2-12 (Continued)

WILD HORSES

1. During construction, cuts will be made in open trenches (at BLM specified intervals) in the Spring Creek Basin horse range to allow horses to cross the open trench.

CULTURAL RESOURCES

1. TransColorado shall comply with the treatment plan developed and approved by BLM, USFS, SHPO, FERC, and the Advisory Council on Historic Preservation.

2. A cultural resource awareness program will be developed and conducted by TransColorado prior to construction to minimize impacts to archaeological sites.

PALEONTOLOGY

1. Two sensitive paleontological sites found during an inventory of the Wasatch Formation will be monitored during construction.

VISUAL RESOURCES

1. In all disturbed areas provide successful regeneration of plant cover including indigenous species.

2. The ROW construction clearing will be limited to a 50-foot width (subject to slope stability engineering design needs) in the following areas. The spoil will be either used as a temporary roadbed or stockpiled in nearby less sensitive areas (e.g., unseen) and subsequently hauled back to the site where it was originally removed.

   Proposed Action and Agency Preferred Alternative Route - Grand Mesa - MP 74.0 to MP 75.7

   Grand Valley Variation - steep basin above Deer Creek River to Big Salt Wash MP 22.2 to MP 24.0

   Mancos Valley West Variation - southside, Dolores River Crossing MP 1.7 to MP 1.8
   (same location for San Juan Valley Variation)

   San Juan Valley Variation - crossing Glade Road north of Farmington MP 80.3 to MP 80.9

3. Existing parallel roads or utility corridors will be used as part of the disturbed zone for access or stockpiling.

4. ROW construction clearing will be extended beyond the standard 75-foot width to create a more natural effect on the final EIS agency preferred route from above Dolores to Mancos Hill.

5. Road cuts will be kept at an angle at or near road crossings shown in Appendix G where the ROW is in long view of the road.

TABLE 2-12 (Continued)

6. The boundary of the ROW will be feathered to minimize straight, non-natural lines, especially in forested areas as directed by the authorized officer.

7. Conifers of sufficient height and density to screen views of ROW will be planted in locations shown in Appendix G or as directed by the authorized officer.

8. The pipeline will be consolidated into a common corridor with existing, nearby utilities when the utilities would be visible in separate corridors (Appendix G).

9. Pipeline will be re-routed to a less topographically prominent position where a significantly less visible alignment exists nearby (Appendix G).

10. Visual intrusions of compression and metering facilities will be mitigated as specified by the authorized officer. Some specific measures include:

    - limit disturbance to minimum area necessary;
    - perform careful, detailed siting and design of facilities to minimize visual contrast, and take advantage of topographic or vegetative screening; and
    - select materials and colors to blend with the surroundings.

11. Aboveground facilities will be painted to blend with natural surroundings (where not precluded by safety regulations) to minimize visual intrusion.

12. Views down the ROW will be minimized by breaking long, straight lines of pipe with ROW angles.

13. Native vegetation will be planted at road, trail, and key visual viewpoints to break view of ROW and blend with natural landscape.

RECREATION

1. Temporary access will be made available for any major campgrounds or trails blocked by construction.

TRANSPORTATION

1. Boring techniques will be used under major or busy roadways to avoid disrupting traffic.

2. During temporary shut-down, ROW shall be blocked to avoid unauthorized entry.

3. Adequate safety precautions and traffic control (detours, flagmen) will be provided for traffic safety in accordance with Federal, state, or county requirements.

4. Any disturbed local roadways will be repaired or replaced to maintain transportation network.

TABLE 2-12 (Continued)

5. All public and private roadway crossings and access points will be restored to safe and acceptable conditions.

6. Minor road crossings will be completed in 24 hours or less to minimize traffic disruption.

7. Access to existing Western Area Power Administration utility lines will not be blocked.

8. Construction activities on Western Area Power Administration's transmission access system shall allow heavy equipment to use the road at least to a standard of H-20 loading. This shall be achieved without increasing the elevation of the road surface in such a manner that would cause high centering of maintenance vehicles.

9. TransColorado will participate in the maintenance of roads used to access the ROW and ancillary facilities in conjunction with other facilities.

10. On USFS roads, no rutting will be allowed on gravel surfaced roads, and up to 2-inch-deep ruts will be allowed on non-surfaced roads.

LAND USE, ZONING, AND LOCAL COMMUNITIES

1. TransColorado shall abide by the valid existing rights of all permittees, licensees, ROW holders, leases, mining claimants, and any other holders of valid authorizations on BLM and USFS lands.

2. Pre-construction meetings will be conducted with the BLM, USFS, and FERC prior to beginning construction.

3. All necessary Federal, state, and local permits will be obtained.

4. The boundaries of the 75-foot construction ROW will be flagged prior to construction.

5. All existing improvements, such as fences, gates, irrigation ditches, and cattle guards, will be maintained and repaired to at least pre-construction condition to minimize disturbances to the public.

6. Measures will be provided to control use of ROW (natural barriers, gates, or tree planting) and prevent unauthorized travel for the life of the project.

PUBLIC HEALTH AND SAFETY

1. A fire prevention and suppression plan will be prepared and followed to avoid fire and maintain public safety.

2. Spark arrestors will be used during construction, operation, and maintenance to prevent fires.

3. Coordination with affected utilities will be done to avoid utility disruptions.

TABLE 2-12 (Continued)

4. Safety measures will be provided to protect workers and the public from electric shocks. Hazards associated with work activities in the vicinity of high-voltage electric power transmission lines will be identified and avoided.

5. An emergency response plan will be prepared and followed for leaks and spills (hazard areas, wetlands, stream crossings) to protect the public.

6. Pipeline construction will cease by sunset, night-time construction will not be permitted.

7. TransColorado will comply with all applicable Federal, state, and local laws and regulations concerning the use, storage, and control of designated hazardous materials.

8. TransColorado will comply with all applicable Federal, state, and local laws and regulations concerning the use, storage, and handling of explosive materials.

TABLE 2-13

TransColorado Gas Transmission Project
Site-Specific Environmental Protection Measures

This table lists BLM and USFS site-specific environmental protection measures that will be attached to the BLM and USFS ROW grant in addition to those listed in Table 2-12. These measures are based upon decisions in BLM and USFS land use plans. As dictated by these plans and agency policies, exceptions to the listed stipulations are permitted by waivers or modifications and must be in writing and signed by both the affected land manager and the authorized officer for the project. The Federal agency that administers the Federal land would prepare site-specific environmental analysis documents prior to waiving any exceptions.

Stipulation	Exception
Paleontological Resources Stipulation	
Paleontological surveys shall be conducted within the 75-foot right-of-way where it intersects BLM/FS Class I paleontological areas. The surveys shall be conducted by a qualified paleontologist prior to pipeline construction. Any significant fossils found during the surveys will be avoided or excavated as instructed by the applicable BLM/USFS office.	
Soils and Water Stipulations	
Surface-disturbing activities shall be prohibited within 100 feet of perennial streams in the Grand Junction Resource Area (Grand Junction Resource Management Plan).	Does not apply to essential utility crossings
Surface disturbance shall be limited in the Palisade watershed and interference with the Palisade watershed shall be avoided (Grand Junction Resource Management Plan). Blading will be limited to that needed for excavation of the pipeline trench and must not exceed 35 feet in width. No blading will be allowed in the remaining 15 feet of the graded ROW.	May be waived or modified during siting of the pipeline if doing so would not result in unacceptable impacts to the watershed.
Surface occupancy shall be prohibited on slopes greater than 40 percent. Other surface-disturbing activities shall be allowed only after analyzing site-specific conditions and potential for safety hazards and reclamation (Grand Junction Resource Management Plan).	Waivers or modifications permitted if TransColorado agrees to the following measures to protect soils, water, and vegetation resources on these steep slopes. Additional measures may be added as needed during siting of the pipeline:

TABLE 2-13 (Continued)

Stipulation	Exception
	a. Prior to any grading and trenching in these areas, a temporary retaining barrier consisting of a woven mesh-type material will be installed at the edge of the defined ROW to hold the spoil material on the slope. Grading and trenching will be accomplished using smaller earth-moving equipment and backhoes. Trench breakers will be used to minimize soil erosion.
	b. After the ROW has been restored to a condition acceptable to BLM, waterbars will be constructed to: (1) ensure that soil erosion is minimized; (2) simulate the imaginary contour lines of the slope (ideally with a grade of 1 to 2 percent); (3) drain away from the disturbed area; and (4) begin and end in vegetation or rock where possible. A closer spacing of waterbars may be required on steep slopes to reduce channelization. Waterbars will be installed according to the following table:

Slope (%)	Spacing Interval (feet)
0-2	120
2-5	100
5-10	75
10-20	50
>20	30

	c. When appropriate, slash will also be used to control erosion. Silt and runoff retention basins may be constructed along the ROW to reduce erosion. The BLM will approve site locations and develop minimum standards for the basins.
	d. Areas disturbed either indirectly by passage of construction equipment or directly by trenching and backfilling will be seeded with a BLM approved mixture. Seeding will be done during the months of September through November. If seeding is not accomplished until the following year, all annuals and undesirable vegetation (Russian thistle, Halogeton, etc.) will be eradicated prior to seeding. The seeds will be planted using a drill equipped with a depth regulator to ensure proper depth. Where drilling is not possible, seed will be broadcast and the area will be chained to cover the seed. When broadcasting the seed, the pounds of pure live seed/acre will be doubled.

TABLE 2-13 (Continued)

Stipulation	Exception
	d. Areas disturbed either indirectly by passage of construction equipment or directly by trenching and backfilling will be seeded with a BLM approved mixture. Seeding will be done during the months of September through November. If seeding is not accomplished until the following year, all annuals and undesirable vegetation (Russian thistle, Halogeton, etc.) will be eradicated prior to seeding. The seeds will be planted using a drill equipped with a depth regulator to ensure proper depth. Where drilling is not possible, seed will be broadcast and the area will be chained to cover the seed. When broadcasting the seed, the pounds of pure live seed/acre will be doubled. e. After the ROW has been restored and seeding has been completed, an approved matting will be installed to stabilize the soil. This matting will only be necessary on very steep slopes selected by the BLM.
Surface-disturbing activities will be prohibited on highly erodible soils from March 1 to May 31 to minimize erosion and salt yields during periods of high soil moisture (Uncompahgre Basin Resource Management Plan).	May be waived or modified if soil conditions permit construction without creating ruts greater than 4 inches in depth.
No long-term adverse impacts on public lands will be allowed to riparian/aquatic systems of Cottonwood and Roubideau Creeks (Uncompahgre Basin Resource Management Plan). Removal of all trees and shrubs in the riparian areas of Cottonwood and Roubideau Creeks shall be prohibited.	May be waived or modified if TransColorado can demonstrate that removal of trees and shrubs in the riparian areas would not result in long-term impacts to the riparian/aquatic systems of Cottonwood and Roubideau Creeks. In addition, any trees or shrubs approved for removal shall be replaced with willow clumps or cottonwoods from nursery stock or some source other than adjacent BLM land. Plants shall be protected from livestock and wildlife.
<u>Wildlife Stipulations</u>	
Disturbing activities shall be prohibited in key, (severe winter range, crucial range, winter concentration areas, fawning areas, calving areas, sage grouse leks, heron rookeries, raptor nests) ranges and nesting areas (Tables 2-15 and 2-16) during the times listed below. These dates are based on the most conservative agency recommendations for areas crossed by the TransColorado Project. Recommended dates vary between BLM Resource Areas, National Forests, and state wildlife agencies.	May be waived or modified if TransColorado can demonstrate that disturbing activities during seasonal closures could be conducted without causing unacceptable impacts to wintering animals, big game calving/fawning areas, nesting/breeding sagegrouse, nesting heron, and nesting raptors.

TABLE 2-13 (Continued)

Stipulation	Exception
Key Winter Range Mule Deer 12/1-5/1 Elk 12/1-5/1 Antelope 12/1-5/1 Fawning, Calving Areas - Mule Deer 5/15-7/1 Elk 5/1-7/1 Antelope 5/1-7/1 Sage Grouse Nesting/Breeding Areas - No activity within 2 miles of an active sage grouse lek between 3/1-7/15 Nesting Waterfowl Areas - 3/15-6/30 Heron Rookeries - No activity within 0.5 miles between 3/15-7/31 Ferruginous Hawk - no activity within 1 mile of the nest between 2/1-8/15 Golden Eagle - no activity within 0.5 miles of the nest between 2/1-8/15 Other Raptor Nests - no activity within 0.5 miles of the nest between 2/1-8/15 (no stipulations cover the American kestrel), the dates and distances vary according to raptor species.	
Major utility corridors are excluded in key big game areas (see Tables 2-15 and 2-16) in the San Juan, San Miguel Resource Areas, to protect wintering big game habitat.	Exceptions may be authorized on a case-by-case basis depending on the site-specific impact of the proposal (San Juan/San Miguel Resource Management Plan). May be waived or modified if TransColorado can demonstrate that pipeline construction could be conducted without causing unacceptable impacts to wintering big game habitat. In addition, TransColorado must agree to re-establish sagebrush, fourwing saltbush, or other appropriate shrubs for winter forage.

TABLE 2-13 (Continued)

Stipulation	Exception
Threatened and Endangered Species Stipulations	
Disturbing activities shall be prohibited in key habitats for threatened and endangered species during the following periods and within the following buffer zones. TransColorado shall not remove or damage any known bald eagle roost trees. In addition, TransColorado shall minimize the removal of all large trees and snags in bald eagle winter use areas. When selecting trees for removal, the following types of trees and snags should be avoided: 1) large conifers, or groups of conifers, which are significantly taller than the adjacent trees, particularly if the trees have open branch structure or dead tops; 2) snags, or groups of snags, which are significantly larger than the surrounding trees; 3) cottonwoods or snags that stand in open mostly treeless areas, such as Disappointment Valley; and 4) large cottonwoods in streamside areas that are significantly taller than surrounding cottonwoods. Recommended avoidance periods and buffer zones vary between BLM Resource Areas, National Forests, and state wildlife agencies. The following buffer zone recommendations are from USFWS bald eagle (USFWS 1982) and peregrine falcon (USFWS 1984) recovery plans and USFS (USFS 1991B) Region 3 Mexican Spotted Owl Guidelines. The following avoidance periods are based on the most liberal agency recommendations for key habitats crossed by the TransColorado project. Bald Eagle Nesting site - no activity within 0.5 miles of the nest between 11/15-7/31. Winter roost - no activity within 0.25 mile of the roost between 11/15-4/15. Winter concentration areas no activity within 0.25 mile of the winter concentration area between 12/1-4/15.	May be waived or modified if TransColorado can demonstrate that pipeline construction could be conducted without causing unacceptable impacts to threatened or endangered species.

TABLE 2-13 (Continued)

Stipulation	Exception
Peregrine Falcon Nesting site - no activity within 1 mile of the nest between 3/15-7/31.	
Mexican Spotted Owl - Establish a 450 acre core area and a 2,000 acre territory around any Mexican spotted owl nest. Restrict activities within core area. If it is not legally possible to restrict activities, no activities will be permitted within the core area between 2/1-7/31. Disturb no more than 516 acres of the 2,000 acre territory.	
Cultural Resources	
TransColorado shall conduct a Class III cultural resources inventory within a 200-foot corridor along the approved pipeline route prior to the BLM and USFS making a decision. The inventory shall be conducted on public and private lands by a Federally-approved archaeologist in accordance with the Programmatic Agreement signed by the BLM, ACHP, USFS, SHPOs, and TransColorado. Cultural resources will be evaluated and then treated according to an approved treatment plan.	
Travel Restrictions:	
Areas listed on Table 2-17 are closed yearlong to off-road or off-trail motorized vehicle travel to prevent erosion and area use conflicts (San Juan National Forest Land and Resource Management Plan).	May be waived or modified if TransColorado can demonstrate that pipeline construction could be conducted without causing unacceptable impacts. This stipulation shall not be waived for scheduled maintenance.
Areas listed on Table 2-17 are closed to motorized vehicles from December 1 to March 31 yearly to protect wildlife winter range (San Juan National Forest Land and Resource Management Plan).	May be waived or modified if TransColorado can demonstrate that pipeline construction could be conducted without causing unacceptable impacts to wildlife winter range. This stipulation shall not be waived for scheduled maintenance.
Roads listed on Table 2-17 are closed to motorized vehicles from November 1 to June 30 yearly to prevent road damage (Grand Mesa, Uncompahgre, and Gunnison National Forests Land and Resource Management Plan).	May be waived or modified if TransColorado can demonstrate that pipeline construction could be conducted without causing unacceptable impacts to roads. This stipulation shall not be waived for scheduled maintenance.

TABLE 2-14

TransColorado Gas Transmission Project
Environmental Protection Measures
for Private and State Lands

The Federal Energy Regulatory Commission (FERC) staff will recommend to its Commission that the measures listed in this table be approved for inclusion in the FERC certificate of public convenience and necessity. If approved, these measures will be implemented as written unless waived in writing by the FERC.

The private landowners may negotiate additional agreements with TransColorado. It must be noted, however, that private landowners may waive only those measures that are within their specified authority to waive. Deviations from the following protection measures which would result in less protective measures must be approved by the FERC.

AIR QUALITY

1. Federal, state, and local air quality emission standards and regulations will be met.

2. Water, or other means, to control dust will be provided in accordance with Federal, local, or state requirements.

3. Construction and operations equipment will be properly maintained to reduce emissions.

4. Dust abatement procedures shall be used at all times when working within 500 feet of the power transmission line ROW unless waived by the owner/operator of the powerline.

5. Compressor stations will be designed to limit noise levels to 50 dBA at all occupied residences between 7:00 p.m. and 7:00 a.m., and 55 dBA during the day.

TOPOGRAPHY

1. Areas of unstable slopes, active faults, and locations of mines will be identified prior to construction. Proper mitigation will be developed (i.e., alternate locations, stronger pipe, installation of monitoring equipment, installation of block valves to isolate area, use of low-density backfill to allow for pipe movement) from geotechnical investigations.

2. Site-specific geotechnical evaluations of compressor sites will be conducted prior to construction to determine foundation requirements.

3. Fault crossings will be assessed and site-specific mitigation measures will be developed (i.e., thicker pipe walls, shut-off valves, and low-density backfill) to maintain safety of pipeline.

TABLE 2-14 (Continued)

SURFACE WATER QUALITY

General Construction

1. Sediment filter devices will be installed, inspected, and repaired to minimize sedimentation where needed or required.

2. Proper riprap application or other techniques will be used to stabilize stream banks where needed or required.

3. Proper water management techniques will be used to prevent silt from entering water channels.

4. Natural drainage will be protected and restored to original contour and patterns to reclaim site.

5. Drainage structures will be installed as necessary to maintain natural surface drainage.

6. Sediment filter devices will be maintained at base of slopes located adjacent to streams until ROW revegetation is complete.

7. The pipeline will be located at least 50 feet from springs unless waived by the affected property owner.

8. Exact locations of water wells will be determined prior to construction and the pipeline rerouted to maintain a minimum of 50 feet of clearance from the well unless waived by the affected property owner.

9. In narrow and deep channels with a flat bottom and little likelihood of further incision, 4-foot depth of pipe burial will be extended laterally from the channel center line a total distance of 3 times the channel depth. The side walls of the cut in the channel bank will be laid back at an angle of 1.5:1 (horizontal:vertical).

10. In deeply incised channels (V-notched cross-section) pipe will be buried 6 feet below channel bed; depth of burial will be extended laterally from the channel center line a total distance of 3 times existing channel depth. The side walls of the cut in the channel bank will be laid back to a slope of 1.5:1.

11. To protect groundwater from accidental fuel spills and contamination, no vehicles will be fueled within a 200-foot radius of all private wells and a 400-foot radius of all municipal water wells.

12. USFWS, the State Fish and Game Departments, and EPA will be consulted regarding withdrawal and disposal of hydrostatic test water.

13. A spill prevention and countermeasure plan will be included in the construction contract specifications.

TABLE 2-14 (Continued)

Stream Crossings

1. Staging areas will be located at least 50 feet from stream bank to maintain buffer zone and avoid water pollution unless waived by the environmental inspector due to topographic restrictions.
2. No storage of fuels or petroleum products will be allowed within 100 feet of any stream bank to avoid water pollution.
3. Perennial stream crossings would be constructed during the low water period.
4. State-issued stream crossing permits will be obtained, if required.
5. Section 401 water quality certification or waiver will be obtained, if required.
6. Stream crossing will be constructed perpendicular to the stream channel, as engineering and routing conditions permit, to minimize length of disturbance.
7. Stream banks will be backfilled to original contour, using gravel or riprap, if necessary.
8. Construction equipment in flowing streams will be limited to that needed to construct the stream crossing. Other construction equipment will cross streams on culverts or portable bridges to reduce sedimentation and bank degradation.
9. Minor perennial stream crossings will be completed within 24 hours (<10 feet wide), if possible.
10. Major stream crossings will be completed within 72 hours (>10 feet wide and < 100 feet), if possible.
11. Site-specific construction plans will be submitted to FERC for all river (100 feet width or greater) crossings.
12. Authorities responsible for potable water supplies located within 3 miles downstream will be notified at least 72 hours prior to instream work.
13. State authorities will be notified at least 48 hours prior to commencement of instream trenching or blasting in major stream crossings.
14. Low-water crossings will be constructed so as not to block or restrict the existing channel.
15. Low-water crossings will be rehabilitated using material removed during construction to avoid new borrow areas.
16. Flow of spoil off ROW will be prevented to minimize downstream sedimentation.
17. Stream flow will be maintained to protect fisheries and aquatic habitat during construction of stream crossings.

TABLE 2-14 (Continued)

18. ROW will be aligned to minimize loss of mature riparian trees.

19. Mudboards will be installed to provide a working surface for equipment on unstable areas as determined by the environmental inspector.

20. On streams less than 10 feet wide and considered an important fishery, the dry ditch method of construction will be used using flume pipe.

21. Rock waterways may be constructed for bank stabilization where high seasonal flows are expected. Only one cubic yard of material per running foot will be placed below the ordinary high watermark.

22. Major stream crossings will be by the open-cut trench method utilizing tracked backhoes.

23. Abandoned water diversions will be plugged and filled to prevent trapping fish.

24. Streambed sediment at the Dolores and San Miguel River crossings in Colorado will be tested for mine waste sediment contamination. If contaminants are found, a site-specific mitigation plan to reduce or prevent re-suspension of contaminated sediments will be prepared and submitted to the authorized officer. Excavated sediments that are found to be contaminated will be disposed off-site in accordance with all local, state, and Federal regulations.

25. Streambed sediment at the La Plata and Animas River crossings in New Mexico will be tested for polycyclic aromatic hydrocarbons (PAH). Sampling and analytical testing methods will be reviewed and approved by the USFWS New Mexico Field Office and COE prior to implementing the sampling program. If contaminants are found, TransColorado will initiate discussions with the USFWS to develop site-specific protection measures.

26. The pipeline will be buried below the maximum estimated scour depth of a 100-year flood at all stream crossings.

27. Trench spoil shall be placed at least 10 feet above existing waterline at all minor and major stream crossings, and the spoil pile shall be protected with silt fence and/or haybales.

Water Use

1. Water withdrawal permits will be obtained for hydrostatic testing and dust control to protect water rights.

2. Proper intake procedures will be used to prevent entrainment of fish and maintain flow rates in source streams.

3. Discharge permits (local, state, NPDES) will be obtained for test water disposal.

4. Test water will be sampled during discharge and treated, if necessary, in accordance with permit to avoid pollution.

TABLE 2-14 (Continued)

5. Dispersion devices or containment structures will be used when discharging test water to avoid erosion.
6. No more than 5 percent of current flow will be withdrawn from any source.
7. Hydrostatic test water will not be discharged into HQ1 or HQ2 streams.

WETLANDS

1. Wetland areas will be avoided to maximum extent possible.
2. Staging areas will be located at least 50 feet from wetland edge to maintain buffer zone and avoid water pollution.
3. Petroleum products will not be stored within 100 feet of wetlands to avoid water pollution.
4. Construction of aboveground facilities will not be permitted in Federally delineated wetlands or 100-year floodplains.
5. Sediment filter devices will be installed to prevent spoil drift and sedimentation where needed and required.
6. State-issued wetland crossing permit will be obtained, if required.
7. Construction ROW in wetland crossings will be less than 75 feet wide to minimize disturbance.
8. Proper clearing techniques will be utilized, leaving roots in place to the maximum extent possible to maintain stability of soils.
9. Wide-track or balloon-tire construction equipment (or proper equipment pads) will be utilized to minimize disturbance.
10. No fertilizer or lime will be used in reclamation activities to prevent eutrophication of wetlands.
11. Soil, rock, tree stumps, or brush riprap will not be used to stabilize ROW to avoid altering the substrate.
12. Sediment filter devices will be installed and maintained at the base of all slopes adjacent to wetlands after construction.
13. Trees and/or native woody vegetation will be replanted in disturbed riparian areas to minimize visual intrusion.
14. Native herbaceous and woody plant species will be monitored to ensure they permanently revegetate.
15. Proper construction techniques will be used to prevent silt from flowing into wetlands.

TABLE 2-14 (Continued)

16. ROW will be aligned to avoid beaver ponds or artificial ponds.

17. Agreements with landowners will be developed to provide short-term protection of stream banks from livestock.

18. Construction across narrow wetlands (<200 feet) will consist of using a work pad (mud board) for the equipment, and the pipe will be placed as though it were on dry ground.

19. Construction across wide wetlands (>200 feet) will consist of laying pre-fabricated sections of the pipe into the trench, utilizing flotation devices.

20. Prior to commencing construction of the pipeline, TransColorado will delineate all wetlands along the certificated route using the latest approved Federal methodology. A wetlands report which identifies all Federally delineated wetlands by milepost would be provided to the FERC staff, or other Federal agencies, upon request.

SOILS

1. Topsoils will be stripped from disturbed areas to a depth of 12 inches or to a depth specified by the landowner. The landowner may also specify the width of topsoil to be stripped but the minimum width should encompass the area over the trench and under the subsoil spoil pile.

2. On saline soils (shale badlands) the top 6 inches of soil over the area to be excavated will be stripped, windrowed, and replaced after construction to encourage revegetation by native seeds present in the topsoil.

3. Steep slopes will be graded properly to minimize erosion.

4. Proper blasting techniques will be used to aid in safety and minimize disturbance.

5. Proper trenching techniques will be used to minimize disturbance.

6. Construction restrictions during wet weather (temporary shutdown) will be followed to avoid road and site disturbance (ruts 4 inches or greater).

7. Cut and fill will not be used unless side slopes exceed 3 percent to minimize soil exposure and erosion.

8. Proper backfilling with compaction and contouring will be done to aid in site reclamation.

9. Backfill will be mounded over trench approximately 0.5 foot to account for subsidence unless otherwise requested by the landowner.

10. Topsoil replacement will be performed over entire disturbed area, sufficient for refilling and mounding.

TABLE 2-14 (Continued)

11. Depending on the time of year, either temporary or permanent erosion control measures shall be initiated within 10 days after the trench is backfilled to aid in site stabilization.

12. Water bars shall drain away from disturbed area and begin and end in vegetation or rock.

13. Excess or unsuitable materials will be disposed of at approved locations.

14. Permanent water bars will be constructed on all slopes to help control runoff. Spacing will be as follows or as directed by the environmental inspector or landowner.

Slope (%)	Spacing
0 to 2	120 feet
2 to 5	100 feet
5 to 10	75 feet
10 to 20	50 feet
20+	30 feet

15. Sediment barriers will be installed and maintained at the base of slopes located adjacent to road crossings until ROW revegetation is complete, or as directed by the environmental inspector.

16. Noxious weed-free sediment barriers will be installed at stream, river, and wetland crossings to minimize sedimentation.

17. Topsoil will not be used for the construction of trench breakers.

18. Snow will not be mixed with fill or topsoil during construction to avoid soil losses.

19. Compacted soils in agricultural areas will be relieved so that bulk density of soils on ROW approximates that of soils on adjacent undisturbed agricultural areas to maintain soil productivity.

20. Compacted soil conditions will be relieved before topsoil is replaced.

21. Topsoil will not be redistributed if the ground or topsoil is frozen.

22. Rocks on ROW will be removed to approximate pre-construction conditions.

23. Any blasting near the transmission line ROW shall include blasting mats or berms so that flyrock or debris will not damage the transmission facilities. Utilities shall be notified prior to all blasting in the ROW.

24. Temporary water bars will be constructed and maintained during project construction on slopes that drain into perennial streams, wetlands, and/or improved road crossings at the following spacing:

TABLE 2-14 (Continued)

Slope (%)	Spacing (ft)
5 to 15	300
16 to 30	200

25. Trench breakers will be constructed on all slopes that drain into perennial streams or wetlands or onto improved roads to prevent the channeling of runoff or the migration of water along the trench. The trench breakers should be constructed at the same spacing as permanent water bars. Trench breakers should also be constructed immediately downslope of any location where groundwater could enter and migrate along the trench at any time of year.

26. Blast rock will not be used to backfill the trench above the top of the existing bedrock profile.

SOLID WASTE

1. Construction sites will be maintained in a sanitary condition.

2. Waste will be disposed of at an authorized disposal site.

3. A litter policing program will be implemented to avoid litter and visual impacts.

VEGETATION

1. Appropriate clearing techniques will be utilized to preserve roots, stockpile or dispose of vegetation wastes to maintain stability of site, and provide erosion control.

2. Construction and reclamation bond will be provided to ensure reclamation.

3. Local authorities (SCS) will be included in reclamation planning for site-specific information. (e.g., noxious weed control, temporary erosion control, and the optimal time for seeding).

4. Turf and landscaping will be restored to landowner requirements.

5. Seedbed preparation will be conducted to 3- to 4-inch depth to enhance revegetation (scarifying, tilling, harrowing).

6. Seeding will be conducted during the time recommended by the local soil conservation official. TransColorado will utilize seed mixes contained in Appendix D in all uncultivated areas unless other seed mixes are specified by the appropriate landowner.

7. If construction is completed more than 30 days before the normal seeding season, temporary erosion control measures shall be used.

8. Approved mulch application will be used in sensitive areas (dry, sandy, steep slopes) to control erosion, as directed by the environmental inspector.

TABLE 2-14 (Continued)

9. Where wood chips are used as mulch, topdress will be with nitrogen at rates specified by the environmental inspector or landowner.

10. Thatching or fiber blankets will be used on stream banks and areas of high erosion potential to control erosion, if needed.

11. Special land preparation will be accomplished on "critical areas" to control erosion and enhance revegetation.

12. Continuing revegetation efforts will be provided to ensure adequate cover until vegetation is established.

13. Procedures for application of herbicides, pesticides, and fertilizers will be identified where needed.

14. Cleared vegetation will be disposed of as directed by the environmental inspector or landowner.

15. Seed will be used within 12 months of testing to assure seed viability.

16. Seed will be drilled, where feasible, to enhance germination.

17. If broadcast or hydroseeding methods are used, seeding rates will be double the recommended seeding rates.

18. Inspection will occur after first and second growing seasons to determine need for further restoration.

19. Revegetation success will be monitored for the life of the project. Problem areas will receive additional revegetation efforts.

20. Noxious Weed control measures will be implemented on the ROW for at least 5 years after construction.

21. Mulch, when used, will be anchored immediately after placing to minimize loss by wind and water.

22. Construction vehicles must arrive at the site in a clean and weed-free condition.

23. Fertilizer will be used if requested by the landowner or if recommended by the environmental inspector, or soil conservation authority.

FORESTRY

1. Merchantable timber will be purchased by TransColorado.

2. Unmerchantable timber may be hauled off site or scattered on the ROW, at the landowners' direction.

3. If timber is scattered, it shall be done after seeding.

TABLE 2-14 (Continued)

4. Unmerchantable timber may be left on the ROW as a barrier to vehicular traffic and to impede erosion.
5. Trees 3 inches in diameter or larger at ground level within the ROW will be cut and not pushed over except in the actual trench where stumps will be pulled during trenching.
6. Trees hung up during felling will be put on the ground immediately as a safety measure.

AGRICULTURAL LANDS

1. Construction will be timed to minimize impacts to cropland in accordance with landowner agreement.
2. All disturbed drain tiles will be located, tested, and restored to original condition.
3. Return agricultural land to its original condition (i.e., soil profile restored, compaction relieved, and tilled as requested by the landowner).
4. Compensation for crop and orchard losses will be provided.
5. Property-specific landowner rehabilitation (other than listed in this General Protection Measures table) will be completed according to landowner specifications stipulated in any landowner easement agreement.
6. Water flow in irrigation ditches crossed by the pipeline will be maintained at all times unless arrangements are made with the affected parties to temporarily shut off the flow of water.
7. Agricultural fields will be monitored periodically for 2 years to assure that the integrity of field flow characteristics has been maintained.
8. At the landowner's request, backfill will not be mounded over the trench to avoid interrupting water distribution in agricultural fields.
9. Crop production will be monitored for 2 years after completion of construction to determine the success of restoration and the need for additional restoration.
10. Irrigation ditches and canals will be monitored for two seasons to ensure the integrity of the ditch and canal banks.
11. All permanently lined irrigation ditches and canals will be bored unless otherwise expressly permitted by the irrigation system owner.
12. TransColorado shall remove rocks larger than 4 inches in any shape or dimension from all segregated topsoil in agricultural and residential areas.

TABLE 2-14 (Continued)

LIVESTOCK GRAZING

1. Grazing deferment plans may be developed with landowners and grazing permittees to minimize grazing disturbance until ROW revegetation is complete.

2. All damaged livestock facilities (fences, water sources) will be repaired to preconstruction condition or greater. Temporary fences will be installed when necessary, to prevent livestock movement across fences temporarily removed for construction.

3. Compensation or temporary measures will be provided for any critical facilities (such as watering sites) that are disrupted during the construction and restoration process.

WILDLIFE

1. Seasonal closures will be observed for elk, deer, antelope, sage grouse, heron, and other specified species unless waived by landowner.

2. All non-essential access roads would be closed along the operational ROW to prevent disturbance impacts to wildlife.

3. A nesting raptor survey will be conducted prior to construction.

THREATENED OR ENDANGERED SPECIES

1. A biological opinion will be rendered from the USFWS, pursuant to Section 7 of the Endangered Species Act, prior to construction.

2. Clearance surveys for sensitive plant species will be conducted prior to construction.

3. Construction will be restricted in key bald eagle wintering areas between November 15 and April 15, unless waived or modified by the USFWS.

4. Construction near active (listed proposed and candidate species) raptor nests will be restricted between February 1 and August 15 (distance restrictions and dates vary with raptor species) unless waived or modified by the USFWS.

5. No identified bald eagle winter roost trees will be removed by pipeline construction.

6. Scheduled maintenance should be done to avoid crucial bald eagle and raptor use periods.

7. Emergency maintenance in crucial bald eagle or raptor areas will require notification of, the USFWS and the CDOW or the New Mexico Game and Fish Department.

8. Stream and river crossings in any occupied threatened and endangered fish habitat would be completed when the streams are at base flow levels. The preferred dates of crossing the Colorado, Gunnison, La Plata, and Animas Rivers are between September 1 and October 15.

TABLE 2-14 (Continued)

9. A study will be designed and completed to document the impact of construction of pipeline crossings on water quality and fish in the Animas and La Plata Rivers. Studies will be coordinated with the USFWS in Albuquerque. The first step in the studies will be to test sediments at the crossing locations for PAH.

10. Site-specific mitigation plans will be developed with the USFWS for any impacted threatened and endangered species. Twenty individuals of Uinta Basin hookless cactus that are removed by construction will be transplanted to suitable habitat in the immediate area. Any depletions of water from occupied habitat for listed fish would be mitigated by paying a one time fee for every acre foot depletion in accordance with current USFWS guidelines.

CULTURAL RESOURCES

1. Culturally sensitive resource areas will be avoided to prevent disturbance or mitigated in order to reduce adverse effects to those areas.

2. Required procedures will be followed if cultural discovery is made during construction.

3. Cultural Resource inventories will be conducted on public and private lands prior to construction.

4. A cultural resource awareness program will be implemented prior to construction to minimize impacts to archaeological sites.

PALEONTOLOGY

1. Proper procedures will be followed if paleontological resources are discovered during construction.

VISUAL RESOURCES

1. A visual resource protection plan that specifies detailed measures to minimize the visual impacts of compression and metering facilities will be submitted to the FERC for its review prior to construction. Some specific measures include:

   - limit disturbance to minimum area necessary;
   - perform careful, detailed sitting and design of facilities to minimize visual contrast, and take advantage of topographic or vegetative screening; and
   - select materials and colors to blend with the surroundings.

2. Aboveground facilities will be painted to blend with natural surroundings (where not precluded by safety regulations) to minimize visual intrusion.

3. The boundary of the ROW will be feathered to minimize straight, non-natural lines, especially in forested areas as directed by the environmental inspector or landowner.

4. Views down the ROW will be minimized by breaking long, straight lines of pipe with ROW angles.

TABLE 2-14 (Continued)

5. Native vegetation will be planted at road, trail, and key visual viewpoints to break view of ROW and blend with natural landscape.

6. ROW width in high-value visual areas will be minimized.

7. In all disturbed areas provide successful regeneration of plant cover including indigenous species (see Table D-1).

8. Existing parallel roads or utility corridors will be used as part of the disturbed zone for access or stockpiling.

9. Consolidate the pipeline into a common corridor with existing, nearby utilities when they would be visible in separate corridors.

10. Minor relocations of pipeline to a less topographically prominent position will be made where a significantly less visible alignment exists nearby.

11. Road cuts will be kept at an angle at or near road crossings shown in Appendix G where the ROW is in long view of the road.

12. Conifers of sufficient height and density to screen views of ROW will be planted in locations shown in Appendix G or as directed by the authorized officer.

RECREATION

1. Temporary access will be made available for any major campgrounds or trails blocked by construction.

TRANSPORTATION

1. Boring techniques will be used under major or busy roadways to avoid disrupting traffic.

2. During temporary shut-down, ROW shall be blocked to avoid unauthorized entry.

3. Adequate safety precautions and traffic control (detours, flagmen) will be provided for traffic safety in accordance with Federal, state, or county requirements.

4. Any disturbed local roadways will be repaired or replaced to maintain transportation network.

5. All public and private roadway crossings and access points will be restored to safe and acceptable conditions.

6. Minor road crossings will be completed in 24 hours or less to minimize traffic disruption.

7. Access to existing Western Area Power Administration utility lines will not be blocked.

TABLE 2-14 (Continued)

8. Any pipeline crossings of Western Area Power Administration access roads shall be designed for H-20 loading. This shall be achieved without increasing the elevation of the road surface in such a manner that would cause high centering of maintenance vehicles.

9. TransColorado will participate in the maintenance of roads used to access the ROW and ancillary facilities in conjunction with other facilities.

LAND USE, ZONING, AND LOCAL COMMUNITIES

1. Access clearance or access permits will be obtained.

2. Pre-construction meetings with affected parties will be conducted.

3. All necessary Federal, state, and local permits will be obtained.

4. Individual property survey maps indicating the centerline of the ROW will be provided to the landowners as part of the ROW negotiations.

5. The ROW will be flagged or staked prior to construction.

6. All existing improvements, such as fences, gates, irrigation ditches, and cattle guards, will be maintained and repaired to at least pre-construction condition.

7. Measures will be provided to control use of ROW (natural barriers, gates, or tree planting) and prevent unauthorized travel for the life of the project.

RESIDENTIAL

1. If the trench is left open overnight within 250 feet of a residence, it will be fenced to mitigate safety concerns.

2. Specific attention will be given to dust control in construction areas within 500 feet of residences and highways.

3. Owners of private roads along the route will be notified at least 24 hours in advance of planned road crossing. Crossing will be completed within 3 hours and roads will be restored to pre-construction condition or better.

4. The construction ROW will be located no closer than 50 feet of any residence.

5. Access to and from residences will be maintained at all times unless expressed authorization is obtained from the landowner.

6. Construction activities, except for hydrostatic testing, will only occur between the hours of 7 a.m. and 5 p.m. 6 days a week (usually Monday to Saturday).

TABLE 2-14 (Continued)

7. If blasting activities are required to residential areas, a matting will be used to prevent damage from flying debris. Nearby landowners will be notified in advance to ensure that all persons, livestock, and equipment are out of the danger zone. Where it is determined there are identifiable risks due to the proximity to residences or other structures, blasting will not be used.
8. Should a water supply well or spring be adversely affected during construction, an emergency source of potable water will be provided until TransColorado has restored the system. Such repairs will be made immediately following construction in that immediate area.
9. No trench within 250 feet of a residence will be left open for more than 3 days.

PUBLIC HEALTH AND SAFETY

1. A fire prevention and suppression plan will be prepared and followed to avoid fire and maintain public safety.
2. Spark arresters will be used during construction, operation, and maintenance to prevent fires.
3. Coordination with affected utilities will be done to avoid utility disruptions.
4. Safety measures will be provided to protect workers and the public from electric shocks.
5. An emergency response plan will be prepared and followed for leaks and spills (hazard areas, wetlands, stream crossings) to protect the public.
6. Pipeline construction will cease by sunset. Night-time construction operations will not be permitted.

MONITORING AND COMPLIANCE

1. TransColorado will hire an independent contractor whose sole function will be to monitor construction and document TransColorado's compliance with the environmental conditions attached to the FERC certificate. This contractor would be in addition to the environmental inspectors that TransColorado has agreed to hire and would have to be approved by the FERC. The monitoring and compliance contractor would employ one environmental monitor per construction spread and would provide weekly status reports to the FERC staff, TransColorado, and other Federal agencies that request these reports.

TABLE 2-15

TransColorado Gas Transmission Project
Recreationally and Economically Important Wildlife
Species Located in the Vicinity of the Proposed Action

Species/Habitat[1]	Milepost[2]	Distance from Right-of-Way[3]
Mule Deer Severe Winter Range	0.0-6.1	0
Mule Deer Crucial Habitat	0.0-6.1	0
Elk Winter Range	9.8-17.8	0
Sage Grouse Nesting Area	14.2-18.8	0
Sage Grouse Lek	16.6	0.25 mile west of ROW
Sage Grouse Lek	16.8	0
Elk Crucial Habitat	17.8-32.3	0
Elk Crucial Summer Range	18.8-25.3	0
Sage Grouse Nesting Area	23.2-29.8 25.8-29.8	0
Elk Winter Range	28.8-36.8	0
Sage Grouse Nesting Area	30.3-36.8	0
Sage Grouse Lek	32.6	200 feet south of ROW
Mule Deer Winter Concentration Area	34.3-47.2	0
Mule Deer Severe Winter Range	34.3-51.6	0
Mule Deer Crucial Habitat	34.3-51.6	0
Elk Winter Range	47.2-54.2	0
Elk Crucial Habitat	48.2-50.6	0
Elk Winter Concentration Area	48.2-51.6	0
Elk Severe Winter Range	48.2-50.6	0
Elk Migration Route	49.6-51.6	0
Elk Winter Range	57.6-72.0	0
Elk Crucial Habitat	59.7-60.7	0
Elk Winter Concentration Area	59.7-60.7	0
Elk Severe Winter Range	59.7-60.7	0
Mule Deer Winter Concentration Area	59.7-63.7	0
Mule Deer Crucial Habitat	59.7-62.2	0

TABLE 2-15 (CONTINUED)

Species/Habitat[1]	Milepost[2]	Distance from Right-of-Way[3]
Elk Winter Concentration Area	63.7-66.6	0
Elk Winter Range	74.2-78.1	0
Elk Crucial Habitat	76.2-77.6	0
Elk Severe Winter Range	76.2-77.6	0
Mule Deer Winter Concentration Area	76.2-79.1	0
Mule Deer Severe Winter Range	76.2-78.6	0
Mule Deer Crucial Habitat	76.2-78.6	0
Pronghorn Antelope Overall Range	84.2-106.7	0
Pronghorn Antelope Winter Range	87.7-106.7	0
Bighorn Sheep Overall Range	93.3-98.7	4.5 miles Southwest of ROW
Pronghorn Antelope Winter Concentration	102.7-105.7	1.4 miles West of ROW
Pronghorn Antelope Overall Range	109.0-115.1	0
Pronghorn Antelope Winter Range	109.0-115.1	0
Elk Winter Range	106.0-135.5	0
Elk Severe Winter Range	108.7-129.7	0
Mule Deer Winter Range	106.0-133.9	0
Mule Deer Severe Winter Range	108.7-129.7	0
Mule Deer and Elk Summer Range	133.9-145.8	0
Mule Deer Winter Range	145.7-182.0	0
Elk Winter Range	145.5-182.0	0
Mule Deer Winter Concentration Areas	150.3-153.3 155.8-160.0 161.4-165.6	0
Elk Calving Area	145.9-147.1	0
Elk Calving Area	147.1	0.3 mile Northwest of ROW
Elk Winter Concentration Area	150.3-153.1	0
Mule Deer Severe Winter Range	158.9-160.2 162.2-176.3	0 0
Elk Severe Winter Range	158.8-160.3 161.9-177.3	0

TABLE 2-15 (CONTINUED)

Species/Habitat[1]	Milepost[2]	Distance from Right-of-Way[3]
Sage Grouse Lek	171.1	1.0 mile Southeast of ROW
Sage Grouse Nesting	174.1-175.6	0.7 mile Northwest of ROW
Sage Grouse Winter Range	171.1-176.6	0
Sage Grouse Nesting Area	171.1-176.6	0
Sage Grouse Lek	174.6	3.7 miles Northwest of ROW
Pronghorn Antelope Winter Range	171.6-175.6	0
Pronghorn Antelope Overall Range	171.6-175.6	0
Pronghorn Antelope Winter Range	180.2-183.6	0
Mule Deer Winter Concentration Area	184.4-194.5	0
Elk Severe Winter Range	185.7-193.5	0
Mule Deer Migration Route	191.3-196.6	0
Mule Deer Migration Route	191.3-195.1	2.0 miles Northeast of ROW
Mule Deer Fawning Area	197.4	0.2 mile Northwest of ROW
Elk Calving Area	192.1-195.1	3.8 miles East of ROW
Mule Deer and Elk Migration Route	207.5-207.7	0
Elk Winter Range	210.3-222.9	0
Elk Migration Route	219.2-219.3	0
Mule Deer Winter Range	222.3-247.3	0
Elk Severe Winter Range	222.9-225.9	0
Elk Winter Concentration Area	225.9-236.3	0
Elk Winter Range	236.3-244.3	0
Elk Severe Winter Range	244.3-247.3	0
Mule Deer Winter Range	247.6-248.6	0
Elk Severe Winter Range	247.6-248.9	0
Mule Deer Summer Range	248.6-256.3	0
Elk Winter Range	248.9-259.4	0
Mule Deer Winter Range	256.3-268.4	0
Elk Severe Winter Range	259.4-262.6	0
Elk and Mule Deer Migration Route	260.6-273.6	0

TABLE 2-15 (CONTINUED)

Species/Habitat[1]	Milepost[2]	Distance from Right-of-Way[3]
Elk Winter Range	262.6-274.1	0
Mule Deer Severe winter Range	268.4-274.1	0
Mule Deer Crucial Habitat	274.1-289.9	0
Elk Crucial Habitat	274.1-289.9	0

[1]Important species habitat are those designated by management agencies, i.e., primarily Colorado Division of Wildlife and Bureau of Land Management and U.S. Forest Service.

[2]The length of important habitat crossed by the proposed or alternate routes is indicated by mileposts. Where important habitat is not crossed but is located nearby, a single milepost indicates the point on the pipeline route in closest proximity to the important habitat.

[3]Miles from ROW, 0 indicates that feature is located on ROW.

TABLE 2-16

TransColorado Gas Transmission Project
Recreationally and Economically Important Wildlife Species
Located in the Vicinity of the Agency Preferred Alternative

Species/Habitat[1]	Milepost[2]	Distance from Right-of-Way[3]
Mule Deer Severe Winter Range	0.0-6.1	0
Mule Deer Crucial Habitat	0.0-6.1	0
Elk Winter Range	9.8-17.8	0
Sage Grouse Nesting Area	14.2-18.8	0
Sage Grouse Lek	16.6	0.25 mile west of ROW
Sage Grouse Lek	16.8	0
Elk Crucial Habitat	17.8-32.3	0
Elk Crucial Summer Range	18.8-25.3	0
Sage Grouse Nesting Area	23.3-29.8 25.8-29.8	0
Elk Winter Range	28.8-36.8	0
Sage Grouse Nesting Area	30.3-36.8	0
Sage Grouse Lek	32.6	200 feet south of ROW
Mule Deer Winter Concentration Area	34.3-47.2	0
Mule Deer Severe Winter Range	34.3-51.6	0
Mule Deer Crucial Habitat	34.3-51.6	0
Elk Winter Range	47.2-54.2	0
Elk Crucial Habitat	48.2-50.6	0
Elk Winter Concentration Area	48.2-51.6	0
Elk Severe Winter Range	48.2-50.6	0
Elk Migration Route	49.6-51.6	0
Elk Winter Range	57.6	0
Elk Crucial Habitat	59.7-60.7	0
Elk Winter Concentration Area	59.7-60.7	0
Elk Severe Winter Range	59.7-60.7	0
Mule Deer Winter Concentration Area	59.7-63.7	0
Mule Deer Crucial Habitat	59.7-62.2	0

TABLE 2-16 (CONTINUED)

Species/Habitat[1]	Milepost[2]	Distance from Right-of-Way[3]
Elk Winter Concentration Area	63.7-66.6	0
Elk Winter Range	74.2-78.1	0
Elk Crucial Habitat	76.2-77.6	0
Elk Severe Winter Range	76.2-77.6	0
Mule Deer Winter Concentration Area	76.2-79.1	0
Mule Deer Severe Winter Range	76.2-78.6	0
Mule Deer Crucial Habitat	76.2-78.6	0
Pronghorn Antelope Overall Range	84.2-106.7	0
Pronghorn Antelope Winter Range	87.7-106.7	0
Bighorn Sheep Overall Range	93.3-98.7	4.5 miles Southwest of ROW
Pronghorn Antelope Winter Concentration	102.7-105.0	1.4 miles West of ROW
Pronghorn Antelope Overall Range	109.0-115.1	0
Pronghorn Antelope Winter Range	109.0-115.1	0
Elk Winter Range	106.0-135.5	0
Elk Severe Winter Range	108.7-129.7	0
Mule Deer Winter Range	106.0-133.9	0
Mule Deer Severe Winter Range	108.7-129.7	0
Mule Deer and Elk Summer Range	133.9-145.8	0
Mule Deer Winter Range	145.7-182.0	0
Elk Winter Range	145.5-182.0	0
Mule Deer Winter Concentration Areas	150.3-153.3 155.8-160.0 161.4-165.6	0
Elk Calving Area	145.9-147.1	0
Elk Calving Area	147.1	0.3 mile Northwest of ROW
Elk Winter Concentration Area	150.3-153.1	0
Elk Severe Winter Range	158.8-159.8	0
Sage Grouse Nesting Area	173.0-181.3	0
Sage Grouse Lek	176.4	1.0 mile East of ROW
Elk Summer Range	182.0-203.0	0

TABLE 2-16 (CONTINUED)

Species/Habitat[1]	Milepost[2]	Distance from Right-of-Way[3]
Mule Deer Summer Range	182.0-203.0	0
Elk Winter Range	186.2-190.4	0
Elk Calving Area	189.6-191.7	2.0 miles West of ROW
Elk Calving Area	195.3-197.6	0.6 mile Northwest of ROW
Elk Winter Range	203.0-208.7	0
Elk Winter Concentration Area	208.7-209.8	
Elk Winter Range	209.8-211.0	0
Mule Deer Summer Range	211.0-224.6	0
Elk Summer Range	211.0-224.6	
Mule Deer Winter Range	224.6-232.0	0
Elk Winter Range	224.6-228.5	0
Elk Winter Concentration Area	228.5-232.0	0
Mule Deer Summer Range	233.3-241.2	0
Elk Winter Range	233.7-243.8	0
Mule Deer Winter Range	241.2-253.0	0
Elk Severe Winter Range	243.8-247.3	0
Elk and Mule Deer Migration Route	245.2-258.3	0
Elk Winter Range	247.3-260.0	0
Mule Deer Severe Winter Range	253.0-260.0	0
Mule Deer Crucial Habitat	260.0-275.0	0
Elk Crucial Habitat	260.0-275.0	0

[1]Important species habitat are those designated by management agencies, i.e., primarily Colorado Division of Wildlife, Bureau of Land Management, and U.S. Forest Service.

[2]The length of important habitat crossed by the proposed or alternate routes is indicated by mileposts. Where important habitat is not crossed but is located nearby, a single milepost indicates the point on the pipeline route in closest proximity to the important habitat.

[3]Miles from ROW, 0 indicates that feature is located on ROW.

TABLE 2-17

TransColorado Gas Transmission Project
Road and Area Closures
Proposed Action and Agency Preferred Alternative

Route	Description	Milepost	Comments
Proposed Action	Ryman Creek Area (T41N, R15W, & R16W)	190.2-197.4	San Juan NF yearlong closure to off-highway vehicles (OHVs). Roads 240 and 241 are closed to motorized vehicles from December 1 to March 31.
Proposed Action		238.2-239.8	San Juan NF yearlong closure to OHVs. Road 328 is closed to motorized vehicles from December 1 to March 31.
Proposed Action		240.0-240.4	San Juan NF yearlong closure to OHVs.
Proposed Action		241.9-243.2 245.6-245.8 246.5-247.3	San Juan NF yearlong closure to OHVs.
Agency Preferred Alternative		224.4-225.0	San Juan NF yearlong closure to OHVs.
Agency Preferred Alternative		226.5-227.8 230.2-230.4 231.1-231.9	San Juan NF yearlong closure to OHVs.
Proposed Action and Agency Preferred Alternative	Uncompahgre	145.6	Uncompahgre NF Closure form 11/1-5/30 Road 540

TABLE 2-18

TransColorado Gas Transmission Project
Summary Impact Comparisons between Proposed Action and Agency Preferred Alternative

	Proposed Action	Agency Preferred Alternative
Air Quality and Noise	Fuel combustion by pipeline construction equipment would increase the concentrations of CO, NO_x, unburned hydrocarbons, and particulate matter (especially fugitive dust) for the short term along 1.4 pipeline miles per day for an estimated 218 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites. The daily fuel combustion emissions per mile from these activities are estimated to be equivalent to those emitted from a typical major urban street. Occupants of 42 residences would be exposed to a short-term (2 to 3 weeks) increase in pipeline construction spread-related noise and fugitive dust. Operation of seven compressor stations would increase the local (within 1 mile) concentrations of CO and NO_2. The maximum estimated increases would range from 10 to 19 percent of the allowable 1- and 8-hour CO concentrations, respectively. Maximum estimated NO_2 concentrations would be 11 times the annual average background level, less than 50 percent of the NAAQS. Although not subject to PSD permitting, the combined (existing and additional) Rocky Mountain-DeBeque compressor station shows a potential impact of 44.0 $\mu g/m^3$, which exceeds the PSD Class II NO_2 increment of 25 $\mu g/m^3$. Based on future review by the permitting authority, if an increment violation is expected to occur, the station would not be approved for construction. A plume visibility screening analysis indicates that operation of compressor stations under the Proposed Action would not be perceptible at Dinosaur National Monument, Black Canyon of the Gunnison National Monument, or at Mesa Verde National Park. Maximum project-related NO_2 concentrations over NPS administered lands would be less than 0.038 $\mu g/m^3$. Although this predicted concentration is well below (less than 2 percent) the applicable PSD Class I NO_2 increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS. Compression stations would be designed to limit operational noise to 50 dBA at all occupied residences between 7:00 pm and 7:00 am, and 55 dBA during the day.	Fuel combustion by pipeline construction equipment would increase the emissions of CO, NO_x, unburned hydrocarbons, and particulate matter (especially fugitive dust) for the short term along 1.4 pipeline miles per day for an estimated 207 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of seven compressor sites. The daily fuel combustion emissions per mile from these activities are estimated to be equivalent to those emitted from a typical major urban street. Occupants of 40 residences would be exposed to a short-term (2 to 3 weeks) increase in pipeline construction, spread-related noise and fugitive dust. Operation of seven compressor stations would increase the local (within 1 mile) concentrations of CO and NO_2. The maximum estimated increases would range from 10 to 19 percent of the allowable 1-hour and 8-hour CO concentrations, respectively. Maximum estimated NO_2 concentrations would be 12 times the annual average background level. No pollutant concentration would exceed 50 percent of the NAAQS. Although not subject to PSD permitting, the combined (existing and additional) Rocky Mountain-DeBeque compressor station shows a potential impact of 44.0 $\mu g/m^3$, which exceeds the PSD Class II NO_2 increment of 25 $\mu g/m^3$. Based on future review by the permitting authority, if an increment violation is expected to occur, the station would not be approved for construction. A plume visibility screening analysis indicates that operation of compressor stations under the Agency Preferred Alternative would not be perceptible at Dinosaur National Monument, Black Canyon of the Gunnison National Monument, or at Mesa Verde National Park. Maximum project-related NO_2 concentrations over NPS administered lands would be less than 0.038 $\mu g/m^3$. Although this predicted concentration is well below (less than 2 percent) the applicable PSD Class I NO_2 increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS. Compression stations would be designed to limit operational noise to 50 dBA at all occupied residences between 7:00 pm and 7:00 am, and 55 dBA during the day.

TABLE 2-18 (Continued)

	Proposed Action	Agency Preferred Alternative
Topography	Natural slope contour would be changed on 11 acres in the Ryman Creek drainage in Dolores County, which represents less than 1 percent of the construction ROW area.	Natural slope contours would be changed on 0 acres.
Leasable Minerals	No potential conflicts with oil and gas development and active oil shale and surface coal mine leases were identified. Construction of the pipeline could cause future conflicts with mining operations on 2.25 square miles of underlying coal that could be surface-mined, and on 9.25 square miles of underlying oil shale potentially yielding 25 gallons per ton. Market forces could dictate the feasibility of moving the pipeline. Construction of the TransColorado pipeline would provide transportation capacity that is approximately 2.5 times the present natural gas volumes sold from Piceance Basin sources. This capacity increase is expected to stimulate construction of gathering pipeline systems to connect with shut-in wells, and additional drilling in the Piceance Basin region.	No potential conflicts with oil and gas development and active oil shale leases were identified. Construction of the pipeline could cause future conflicts with mining operations on 2.25 square miles of underlying coal that could be surface-mined, and on 9.25 square miles of underlying oil shale potentially yielding 25 gallons per ton. Construction of the TransColorado pipeline would provide transportation capacity that is approximately 2.5 times the present natural gas volumes sold from Piceance Basin sources. This capacity increase is expected to stimulate construction of gathering pipeline systems to connect with shut-in wells, and additional drilling in the Piceance Basin region.
Mineral Materials	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to an estimated 55 acres of unleased or privately owned mineral materials.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to an estimated 55 acres of unleased or privately owned mineral materials.
Surface Water Quality	Trenching, pipe laying, and backfilling in 5 major rivers, 5 major streams, and 19 minor perennial streams would increase suspended sediment from several days to several weeks during and subsequent to the pipeline installation period. Salinity increases in the Colorado River would be 32 tons per year (maximum) for a 1- to 2-year period. Maximum suspended sediment increases (4 percent of daily mean sediment yield) from trenching are expected at the La Plata River crossings.	Trenching, pipe laying, and backfilling in 5 major rivers, 5 major streams, and 21 minor perennial streams would increase suspended sediment from several days to 2 weeks during and subsequent to the pipeline installation period. Salinity increases in the Colorado River would be 23 tons per acre per year (maximum) for a 1- to 2-year period. Maximum suspended sediment increases (4 percent of daily mean sediment yield) from trenching are expected at La Plata River crossings.
Municipal Watersheds and Water Supplies	Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed and 43 acres in the Grand Junction watershed would slightly increase soil erosion, and slightly decrease the permeability of the ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes in both Palisade and Grand Junction municipal watersheds. Trenching across the Dolores and Animas Rivers would slightly increase suspended sediment at the Dolores municipal water treatment plant intake and at the Aztec alternate intake for a period of several days to weeks.	Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed and 43 acres in the Grand Junction watershed would slightly increase soil erosion, and slightly decrease the permeability of the ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes in both Palisade and Grand Junction municipal watersheds. Trenching across the Dolores and Animas Rivers would slightly increase suspended sediment at the Dolores municipal water treatment plant intake and at the Aztec alternate intake for a period of several days to weeks.

TABLE 2-18 (Continued)

	Proposed Action	Agency Preferred Alternative
Bureau of Reclamation Water Projects	Based on TransColorado's commitment to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.	Based on TransColorado's commitment to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.
Wetlands	Pipeline construction would decrease herbaceous vegetation cover on 13 acres of wet meadows/haylands for the short term; 2 acres of shrub wetlands for the long term, and decrease shrub and tree cover on 14 acres of forested wetlands for the long term. Much less than 1 percent of the wetlands in any watershed would be disturbed by pipeline construction.	Pipeline construction would decrease herbaceous vegetation cover on 14 acres of wet meadows/haylands for the short term; decrease shrub species cover on 1 acre of shrub wetlands for the long term, and decrease shrub and tree cover on 14 acres of forested wetlands for the long term. Much less than 1 percent of the wetland in any watershed would be disturbed by pipeline construction.
Soils	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 1 to 5 years. Some increased erosion would be expected on the entire 2,865 acres. On areas of saline/alkaline soils (527 acres), steep (greater than 15 percent) slopes (336 acres), or shallow/rocky soils (1,090 acres) revegetation may be more difficult. Increases in salinity from erosion of saline areas would be a maximum of 32 tons per year. Over the long term, wind and water erosion losses and vegetation productivity losses from the pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to preconstruction levels within 1 to 5 years. Some increased erosion would be expected on the entire 2,693 acres. On areas of saline/alkaline soils (382 acres), steep (greater than 15 percent) slopes (258 acres), or shallow/rocky soils (1,034 acres), revegetation may be more difficult. Over the long term, wind and water erosion losses would not be expected to exceed those presently occurring on adjacent, undisturbed soils.
Prime and Unique Farmland	Pipeline construction would decrease production on 82 acres of prime farmland and 109 acres of farmlands of statewide importance. A fraction of 1 percent of the farmland in any county crossed by the pipeline would be taken out of production for two growing seasons.	Pipeline construction would decrease production on 80 acres of prime farmland and 111 acres of farmland of statewide importance. A fraction of 1 percent of the farmlands in any county crossed by the pipeline would be taken out of production for two growing seasons.
Forestry	Pipeline construction would remove conifer and aspen timber resources and pinyon-juniper fuel wood/fencepost resources from 900 acres. These would be long-term impacts equal to approximately 11 percent of the timber, fuel wood, and fencepost annual harvest from adjacent public lands (1990 harvest).	Pipeline construction would remove conifer and aspen timber resources and pinyon-juniper fuel wood/fencepost resources from 745 acres. These would be long-term impacts equal to approximately 10 percent of the annual timber, firewood, and fencepost harvest from adjacent public lands (1990 harvest).
Livestock Grazing	Pipeline construction would decrease AUMs by 238 but would not reduce stocking rates in any allotments crossed.	Pipeline construction would decrease AUMs by 226 but would not reduce stocking rates in any allotments crossed.

TABLE 2-18 (Continued)

	Proposed Action	Agency Preferred Alternative
Wildlife	Construction disturbance would decrease less than 1 percent of the surrounding key game ranges and vegetation types and would displace an unquantifiable number of animals. No regional population declines would result from pipeline construction for any species. A local population decline could occur for sage grouse utilizing the two leks that would be disturbed by construction activities.	Construction disturbance would decrease less than 1 percent of the surrounding key game ranges and vegetation types and would displace an unquantifiable number of animals. No regional population declines would result from pipeline construction for any species. A local population decline could occur for sage grouse utilizing the two leks that would be disturbed by construction activities.
Fisheries	Pipeline construction would result in short-term increases in sedimentation and short-term losses of streambed substrate and biota in 15 Class I cold water rivers and streams and 14 Class II rivers and streams. The streambed disturbance would result in very limited fish mortality and no loss of fishery quality or recreational opportunities.	Pipeline construction would result in short-term increases in sedimentation and short-term losses of streambed substrate and biota in 15 Class I cold water rivers and streams and 16 Class II rivers and streams (see Appendix C, Table C-2). The streambed disturbance would result in very limited fish mortality and no loss of fishery quality or recreational opportunities.
Threatened and Endangered Species	Animals. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered animal species. The likelihood that emergency response actions would disturb threatened and endangered species during crucial periods is very low.	Animals. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered species. The likelihood that emergency response actions would disturb threatened and endangered species during crucial periods is very low.
	Plants. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of most threatened and endangered plants. Twenty individuals of Uinta Basin hookless cactus and 350 individuals of DeBeque milkvetch would be removed by construction activities. The likelihood that emergency response actions would impact rare plant populations is very low.	Plants. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered species. Twenty individuals of Uinta Basin hookless cactus and 350 individuals of DeBeque milkvetch would be removed by construction activities. The likelihood that emergency response actions would impact rare plant populations is very low.
Cultural Resources	Assuming approximately 15 percent of the NRHP-eligible sites could be avoided and approximately 30 percent of the remaining eligible sites would be excavated, approximately 55 percent of all NRHP-eligible sites could be partially destroyed by construction activities.	Assuming approximately 15 percent of the NRHP-eligible sites could be avoided and approximately 30 percent of the remaining eligible sites would be excavated, approximately 55 percent of all NRHP-eligible sites could be partially destroyed by construction activities.
Native American Religious Values	No Native American traditional use or religious areas are known at this time.	No Native American traditional use or religious areas are known at this time.
Paleontological Resources	An undetermined number of fossils in the Class I paleontological localities would be excavated and would not be destroyed by construction activities. An undetermined number of fossils would be left in place and could be partially or totally destroyed by construction activities. Information about these sites would be disseminated to the scientific community.	An undetermined number of fossils in the Class I paleontological localities would be excavated and would not be destroyed by construction activities. An undetermined number of fossils would be left in place and could be partially or totally destroyed by construction activities. Information about these sites would be disseminated to the scientific community.

TABLE 2-18 (Continued)

	Proposed Action	Agency Preferred Alternative
Visual Resources	Thirty locations along the proposed route have potential for high visual impact. Of the 30 locations, it was determined that by applying visual environmental protection measures, the high impact could be reduced to moderate or low in 19 locations. The remaining 11 locations would still result in a high (short- and long-term) visual impact on approximately 6.0 miles along the ROW at 8 locations and at 3 compressor stations. BLM VRM guidelines would be exceeded in 3 locations; USFS visual quality objectives (VQO) guidelines would also be exceeded in 3 locations. The visual impact to the Grand Mesa would be low except for the most critical viewpoint from Whitewater, which would be moderate.	Twenty-six locations along the agency preferred route have potential for high visual impact. Of the 26 locations, it was determined that by applying visual environmental protection measures, the high impact could be reduced to moderate or low in 14 locations. The remaining 12 locations would still result in a high (short- and long-term) visual impact on approximately 7.3 miles along the ROW at 8 locations and at 4 compressor stations. Some of the locations of the high visual impacts would be different from the proposed route. BLM VRM guidelines would be exceeded at the same three locations as for the proposed route, while USFS VQO guidelines would be exceeded at one location, the Dolores River crossing, which is only partially on National Forest System lands. The visual impact to the Grand Mesa would be low except for the most critical viewpoint from Whitewater, which would be moderate.
Transportation Systems	Construction would result in possible short-term traffic delays during road crossings and would require improvement or grading of 199 miles of dirt/gravel roads. Construction might damage dirt and graveled roads for the short term but not for the long term, as the roads would be repaired.	Construction would result in possible short-term traffic delays during road crossings and would require the improvement or grading of 183 miles of dirt/gravel roads. Construction might damage dirt and graveled roads for the short term but not for the long term, as roads would be repaired.
Solid Waste Facilities	An estimated 4,360 cubic yards of construction-related solid waste would be generated by the Proposed Action and placed in licensed landfills along the pipeline route.	An estimated 4,140 cubic yards of construction-related solid waste would be generated and disposed of in licensed landfills.
Socioeconomic Conditions	Crop production would be precluded on 273 acres for 2 years. Construction activities will result in employment of approximately 360 local workers and local expenditures of $5.8 million by local and non-local workers. Rental housing, motel/hotel, and RV accommodations for the construction labor force might not be adequate during the summer.	Crop production would be precluded on 266 acres for 2 years. Construction activities would result in employment of approximately 360 local workers and local expenditures of $5.8 million by local and non-local workers. Rental housing, motel/hotel, and RV accommodations for the construction labor force might not be adequate during the summer.

TABLE 2-18 (Continued)

	Proposed Action	Agency Preferred Alternative
Socioeconomic Conditions (Continued)	Operation of the pipeline would yield approximately $4.2 million in first-year property taxes, and $10,000 in ROW fees would be paid to Federal agencies for the first year. Based on current valuations, the annualized value of timber, fuel wood, and livestock forage removed from the ROW would represent approximately 11 percent of the annual Federal ROW fees. The value of crop production precluded on 273 acres for 2 years is estimated to be $44,800. Approximately 20 persons would be employed as operational staff. Payroll for this staff would result in local expenditures of approximately $219,000 annually for goods and services. Operation of the pipeline would increase the private land area committed to long-term utility uses by 787 acres. The combination of the TransColorado ROW with existing parallel ROWs would preclude installation of buildings on an average of 12 percent of each of 15 land parcels crossed by the pipeline ROW. Each of the 15 parcels crossed is less than 20 acres in size. TransColorado would negotiate an agreement to cross the 0.25-mile length of land recently acquired by the Southern Ute Indian Tribe. If such an agreement is not possible, TransColorado may realign the route approximately 500 feet to the east in the Colorado State Highway 140 ROW. The Southern Utes, along with other San Juan Basin gas producers, would experience increased competition for sales of natural gas if the TransColorado pipeline were built. However, the extent to which this increased competition would affect sales is difficult to quantify because of uncertainties in estimating available gas supplies, future market prices, and future changes in pipeline capacity. Approval to construct the TransColorado pipeline would not singularly, unfairly, nor unjustly inhibit Southern Ute competition in the U.S. natural gas markets; the Trust Responsibility between the Secretary of the Interior and the Southern Ute Indians would not be violated.	Operation of the pipeline would yield approximately $4.0 million in first-year property taxes, and $8,500 in ROW fees would be paid to Federal agencies for the first year. Based on current valuations, the annualized value of timber, fuel wood, and livestock forage removed from the ROW would represent approximately 11 percent of the annual Federal ROW fees. The value of crop production precluded on 266 acres for 2 years is estimated to be $43,624. Approximately 20 persons would be employed as operational staff. Payroll for this staff would result in local expenditures of approximately $219,000 annually for goods and services. Operation of the pipeline would increase the private land area committed to long-term utility uses by 860 acres. The combination of the TransColorado ROW with existing paralleled ROWs would preclude installation of buildings on an average of 12 percent of each of 15 land parcels crossed by the pipeline ROW. Each of the 15 parcels crossed is less than 20 acres in size. TransColorado would negotiate an agreement to cross the 0.25-mile length of land recently acquired by the Southern Ute Indian Tribe. If such an agreement is not possible, TransColorado may realign the route approximately 500 feet to the east in the Colorado State Highway 140 ROW. The Southern Utes would likely experience increased competition for natural gas sales of Tribal natural gas if the TransColorado pipeline were built. However, the extent to which this increased competition would affect natural gas sales is difficult to quantify because of uncertainties in estimating available gas supplies, future market prices, and future changes in pipeline capacity. Approval to construct the TransColorado pipeline would not singularly, unfairly, nor unjustly inhibit Southern Ute competition in the U.S. natural gas markets; the Trust Responsibility between the Secretary of the Interior and the Southern Ute Indians would not be violated.
Public Safety	Operation of the pipeline would result in an estimated fatality rate of 1 death for every 410 years of operation, based on the incident rates reported for the entire U.S. for the 1970-1984 period.	Operation of the pipeline would result in an estimated fatality rate of 1 death for every 426 years of operation, based on the incident rates for the entire U.S for 1970 to 1984 period.

CHAPTER 3

AFFECTED ENVIRONMENT

INTRODUCTION

Chapter 3 is a summary of the affected environment for all resources potentially affected by the Proposed Action, Agency Preferred Alternative, and route variations. These resources are addressed, based on the issues identified through the formal public scoping process. The affected environment is a baseline for each discipline and describes the current conditions prior to and in absence of the Proposed Action. All specific baseline data related to route variations of the project are presented in Appendix B. The large, color fold-out maps depicting various resource information, that were previously presented in the draft environmental impact statement (EIS) have not been reprinted in this final EIS. Copies of these maps may be reviewed at local libraries or at the applicable Bureau of Land Management (BLM) and Forest Service (USFS) offices.

CLIMATE

The climate of western Colorado and northwestern New Mexico can generally be classified as varying from semi-arid to highland. The pipeline route is characterized by light precipitation, low relative humidity, abundant sunshine, and large annual and daily temperature ranges.

Climatological data representative of this region are presented in Table 3-1. January temperatures range from average daily minimums in the teens to average daily maximums near 40°F. Daily minimum temperatures in July range from the 50s to mid 60s, while daily maximums average in the high 80s to low 90s. A high frequency of clear skies and low relative humidity in the region provides for rapid nighttime cooling. The average diurnal range between maximum and minimum temperatures is from 25 to 40°F.

Growing seasons (killing frost to killing frost) are generally the longest at lower elevations. The longest growing seasons occur in the Grand Valley in Mesa County (185 days), and the shortest growing seasons (less than 1 day) are at elevations above 7,000 feet on the Roan Plateau in Rio Blanco and Garfield Counties, on the Uncompahgre Plateau in Montrose and San Miguel Counties, and the west and south sides of the San Juan and La Plata Mountains in Dolores and Montezuma Counties, Colorado.

Average annual precipitation ranges from 8 to 30 inches along the pipeline route. The variability in precipitation is mainly a function of elevation. Higher elevations receive more precipitation than valleys and lower elevations. In western Colorado, the late summer and winter months tend to be the wettest while June is one of the driest. Snowfall across the pipeline route ranges from an annual average of nearly 20 inches in the lower valleys to nearly 100 inches in the higher elevations. The greatest monthly amounts of precipitation occur from late summer thunderstorms and winter frontal storms associated with easterly movement of Pacific Ocean storms. In northwestern New Mexico, wettest months occur in the fall, with June and the winter months being drier.

AIR QUALITY AND NOISE

Air quality in western Colorado and northwestern New Mexico, where most of the proposed route and agency preferred routes would pass and where proposed compressor stations would be

TABLE 3-1

TransColorado Gas Transmission Project
Summary of Temperature and Precipitation Data in Western Colorado[1] and Northwestern New Mexico

	January Mean Temperature (°F)		July Mean Temperature (°F)		Annual Precipitation (inches)	Growing Season Range Number of Days between Minimums of:	
	Minimum	Maximum	Minimum	Maximum		32°F	24°F
Meeker	7	37	48	86	17.5	91	143
Grand Junction	17	37	65	93	8.2	185	230
Norwood	10	36	49	83	14.3	84[2]	172[2]
Cortez	14	41	55	89	12.5	126	180
Durango	11	43	50	87	18.6	96	146
Aztec Ruins National Monument, NM[3]	13	38	57	91	9.8	147	190

[1]Period of Record: 1951-1970.

[2]NOAA 1989.

[3]Approximately 15 miles northeast of Farmington, New Mexico.

Source: NOAA 1974.

located, is good because of the general lack of industrial activity in rural regions. Since ambient pollutant levels are usually near or below the measurable limits, the U.S. Environmental Protection Agency (EPA) has designated the area "attainment" for all criteria pollutants.

The major regional sources of regulated air pollutants include coal-fired power plants: the Craig and Hayden power plants in the Yampa River Valley near Craig and Hayden, Colorado; the Cameo Power Plant near Palisade, Colorado; and the Four Corners and San Juan Generating Station near Fruitland, New Mexico. Other industrial sources include the Louisiana Pacific waferboard plant near Olathe, Colorado, and a small oil refinery near Fruita, Colorado. Natural gas compressor stations in Colorado are at various locations in the Piceance Basin in Rio Blanco and Garfield Counties; the Plateau Creek area of Mesa County; the Paradox Basin area in San Miguel and Dolores Counties; and the northern San Juan Basin near Durango. In New Mexico, compressor stations are located in the San Juan Basin near Farmington and Bloomfield.

Air Quality Regulations

National Ambient Air Quality Standards (NAAQS) limit the total amounts of specific pollutants allowed in the atmosphere: carbon monoxide (CO), lead, nitrogen dioxide (NO_2), ozone, sulfur dioxide (SO_2), and particulate matter (total suspended particulates [TSP] and inhalable particulates [PM-10]). State standards include these parameters but may also be more stringent (i.e., Colorado's 3-hour SO_2 standard). These standards were established to protect public health (primary standards) and public welfare (secondary standards).

Areas where air pollutant levels are measured or are believed to be below the standards are designated "attainment" or "unclassified." Areas that consistently violate minimum federal standards because of man-caused activities are classified as "nonattainment" areas and must implement a plan to reduce ambient levels below the maximum pollution standards. To protect areas not classified as "nonattainment," Congress established a system for the Prevention of Significant Deterioration (PSD) through the Clean Air Act Amendments of 1977. Areas were classified by the additional amounts of NO_2, SO_2, and TSP degradation that would be allowed. PSD Class I areas, predominantly national parks and certain wilderness areas, have the greatest limitations; virtually any degradation would be significant. Areas where moderate, controlled growth can take place were designated as PSD Class II. PSD Class III areas are those areas that allow the greatest degree of additional impacts.

The primary procedures used to determine if a new air pollution source would impact PSD increments or have adverse impacts on "Air Quality Related Values" (i.e., impacts to visibility, flora, fauna, cultural resources) is the PSD New Source Review permitting process. Under most circumstances, only new facilities (or modifications to existing sources) with the potential to emit over 250 tons per year (tpy) of any regulated pollutant would be required to obtain a PSD permit. Only one compressor station under the Proposed Action and Agency Preferred Alternative exceeds this 250 tpy limit, but since one half of the Rocky Mountain-DeBeque Compressor station's 255 tpy NO_x emissions (as well as one half of the predicted ground level concentrations) occur from an existing compressor station, it is unlikely that any PSD permits would be required. However, all proposed compressor stations would "consume increment," an accounting system maintained by the permit authority. Accordingly, potential PSD increment concentrations are calculated for all compressor stations in Chapter 4: Environmental Consequences.

Existing Air Quality

The region through which most of the proposed route and agency preferred routes would pass is designated as a PSD Class II area. Figure 3-1 illustrates the location of PSD Class I areas in relation to the proposed and agency preferred compressor station locations. The proposed route and the agency preferred route would pass within 15 miles of the Black Canyon of the Gunnison Wilderness Area, and the proposed route would pass within 7 miles of Mesa Verde National Park, both PSD Class I areas. (It should be noted that only the wilderness area portion of the Black Canyon of the Gunnison National Monument is classified PSD Class I). The Lizard Head Wilderness (a PSD Class II area) is approximately 12 miles away from the proposed route.

In recent presentations to various regulatory agencies, the National Park Service (NPS) expressed concerns about existing and future visibility impairment on Mesa Verde National Park as a result of man-made pollution (NPS 1985; NPS 1987). Black Canyon of the Gunnison Wilderness Area and National Monument has also been identified as an area where adverse air quality impacts may occur (NPS 1991). In addition to sulfates and other particulate matter, the NPS believes that NO_2 is a major contributor to visible plumes from industrial sources, and that NO_2 and nitrate (NO_3) from these sources may contribute to regional haze. The NPS has been collecting visibility data at Mesa Verde National Park, and certified to EPA in 1985 (NPS 1985) that there is significant visibility impairment at Mesa Verde National Park. Considering the Clean Air Act requirements that reasonable progress be made toward the national goal "of remedying existing and preventing future man-made visibility impairment in mandatory (PSD) Class I areas," any perceptible visibility impairment may be considered unacceptable by the NPS.

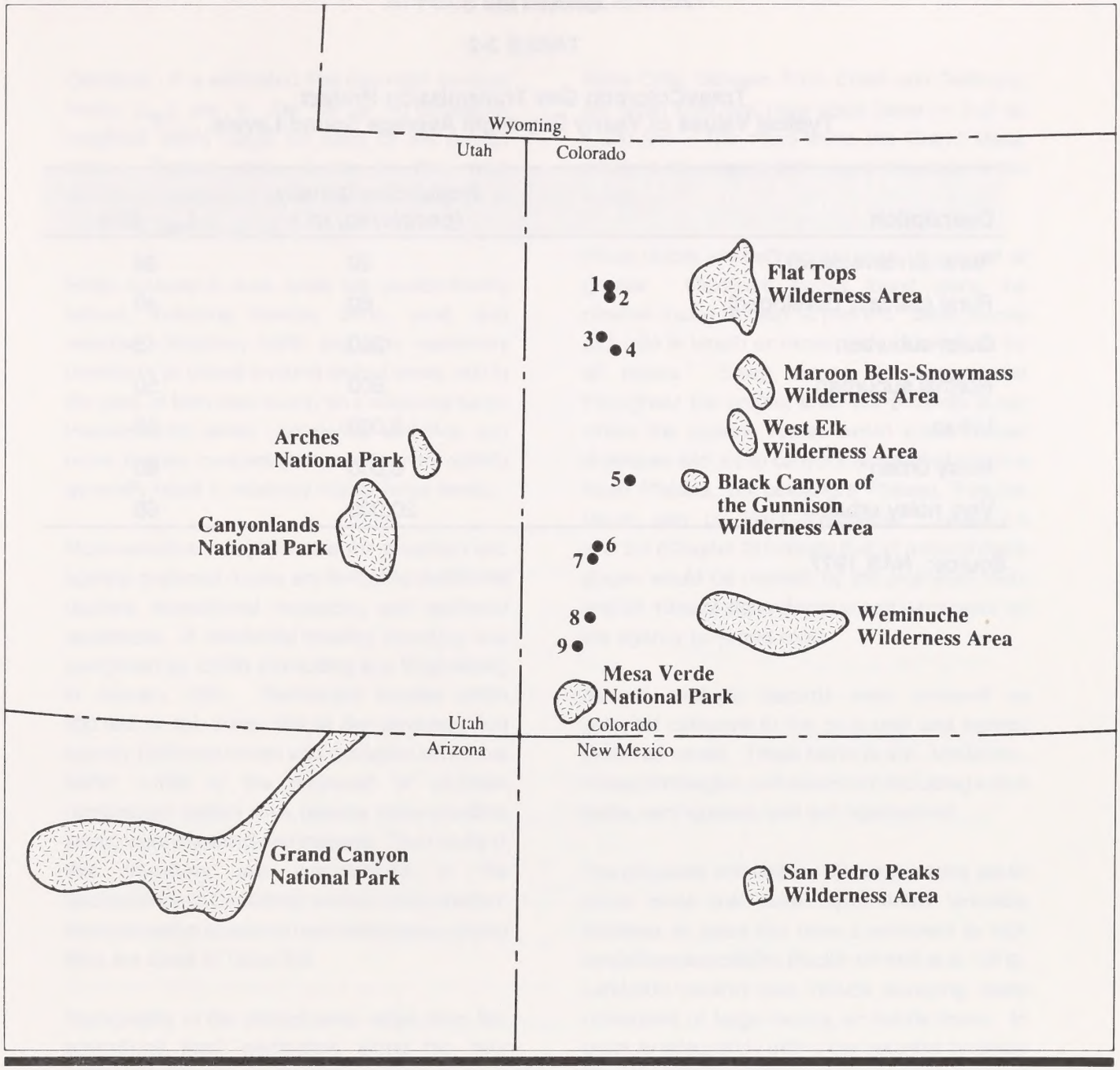
Ambient levels for gaseous pollutants were not exceeded during the data collection period from 1957 to 1970. Standards for TSP and PM-10 are occasionally exceeded; however, these violations usually occur in small towns as a result of woodburning and road sanding activities (Woodward-Clyde [WCC] 1990). The Colorado Department of Health (CDOH) (Chick 1992) provided estimated western Colorado background concentrations for pollutants commonly emitted by natural gas compressor stations: the carbon monoxide 1-hour concentration (second highest measurement) is 2,500 micrograms per cubic meter ($\mu g/m^3$); the carbon monoxide 8-hour concentration (second highest measurement) is 1,250 $\mu g/m^3$; and the average annual NO_2 concentration is estimated to be 4 $\mu g/m^3$.

Noise

The existing noise environment is characterized by ambient sound levels, existing noise sources, the existence of noise-sensitive receptors in the vicinity, and local terrain features that may affect noise transmission.

TransColorado's proposed pipeline routes and compressor station sites would be located primarily in agricultural, rangeland, or forest areas. Because of the rural, agricultural, and low-density residential land uses, existing ambient sound levels in the project area are believed to be quite low.

Since measured noise data for the proposed and agency preferred routes and compressor station sites do not exist, background levels have been estimated from empirical techniques and measured data for similar geographic and demographic areas. The relationships between population density and noise levels are presented in Table 3-2. Population densities for the project area range from a low of 1.5 people per square mile in Dolores County, Colorado, to a high of 26.9 people per square mile in Mesa County,



1 Questar-Piceance Creek (Proposed/Agency Preferred Route)
2 WestGas-Meeker (Proposed/Agency Preferred Route)
3 Rocky Mountain-DeBeque (Proposed/Agency Preferred Route)
4 WestGas-DeBeque (Proposed/Agency Preferred Route)
5 Transcolorado-Olathe (Proposed/Agency Preferred Route)
6 Rocky Mountain-Redvale (Agency Preferred Route)
7 Rocky Mountain-Big Gypsum (Proposed Route)
8 Dolores Alternate 1 (Agency Preferred Route)
9 Dolores Alternate 2 (Proposed Route)

MANDATORY PSD CLASS I AREAS & TRANSCOLORADO PROPOSED COMPRESSOR STATIONS

FIGURE 3-1

TRANSCOLORADO GAS TRANSMISSION PROJECT

TABLE 3-2

TransColorado Gas Transmission Project
Typical Values of Yearly Day-Night Average Sound Levels

Description	Population Density (people/sq. mi.)	L_{dn} - dBA
Rural (undeveloped)	20	35
Rural (partially developed)	60	40
Quiet suburban	200	45
Normal suburban	600	50
Urban	2,000	55
Noisy urban	6,000	60
Very noisy urban	20,000	65

Source: NAS 1977.

Colorado. It is estimated that day-night average levels (L_{dn}) are in the 35 to 40 decibels-A weighted (dBA) range for most of the project area. Typical noise levels in the more developed/suburban areas are believed to be in the 40 to 50 dBA range.

Noise sources in rural areas are predominantly natural, including insects, birds, wind, and weather. Roadway traffic and farm machinery contribute to overall levels in limited areas, and in the case of farm machinery, on a seasonal basis. Heavier traffic levels, commercial activities, and more intense concentrations of human activity generally result in relatively higher noise levels.

Noise-sensitive receptors near the proposed and agency preferred routes are limited to residential clusters, recreational resources, and scattered residences. A residential housing inventory was completed by ENSR Consulting and Engineering in January 1991. Residential houses within 500 feet of the center line of the proposed and agency preferred routes and occupied structures within 1 mile of the proposed or alternate compressor station sites (nearby noise-sensitive areas) were identified and mapped. The results of this inventory are summarized in the Socioeconomic Conditions section in this chapter. Noise-sensitive receptors near compressor station sites are listed in Table 3-3.

Topography in the project area varies from flat, agricultural land, particularly along the river valleys, to wooded, gently rolling terrain, to steep canyon topography. Consequently, any effects from terrain on noise propagation are site-specific.

TOPOGRAPHY

The topography varies from level, gently sloping valley floors to flat mesa tops. Canyons dissect the land for the entire length of the route. These canyons vary from wide, gently sloping to steep, narrow, V-shaped canyons. The Roan Cliffs and Book Cliffs, between Roan Creek and DeBeque, are shale cliffs that have sheer faces as high as 1,500 feet. The route skirts the Grand Mesa, which is the largest flat-topped mountain in the world.

Steep slopes are defined as those 15 percent or greater. Maximum slopes found along the pipeline routes exceed 60 percent. Steep slopes (0.1 mile in length or more) were determined for all routes. Steep slopes are encountered throughout the project area, but primarily occur where the pipeline routes would cross incised drainages and steep canyons associated with the Roan Plateau, Uncompahgre Plateau, Paradox Basin, and La Plata Mountains. Tables 2-4 and 2-9 (Chapter 2) indicate that 37 miles of steep slopes would be crossed by the proposed route and 28 miles of steep slopes would be crossed by the agency preferred route.

Several geologic hazards were reviewed as potential concerns to the proposed and agency preferred routes. These hazards are: landslides, incised drainages, and seismicity (including active faults, earthquakes, and soil liquefaction).

The proposed and agency preferred routes would cross areas that have documented landslide incidents or areas that have a moderate to high landslide susceptibility (Radbruch-Hall et al. 1976). Landslide hazards may include slumping, mass movement of large blocks, or debris flows. In order to adequately define the potential landslide hazard, published sources were consulted as well as recent aerial photography. In high hazard areas (e.g., Grand Mesa, Ryman Creek, and Mancos Valley), field reconnaissance was conducted to confirm the existence of slides indicated by aerial photography. Table 3-4 is a listing of landslides encountered along the routes. Tables 2-4 and 2-9 indicate 4 miles of active landslide areas and 17 miles of landslide deposits are crossed by the proposed route, and 4 miles of active landslide areas and 24 miles of landslide

TABLE 3-3

TransColorado Gas Transmission Project
Noise-Sensitive Receptors Within 1 Mile (5,280 Feet) of Compressor Stations

Compressor Station	Receptor 1[1] Range (feet)	Receptor 2[1] Range (feet)	Receptor 3[1] Range (feet)
Questar-Piceance[2]	N/A	N/A	N/A
WestGas-Meeker	Community Building 1,800 (NW)	Residence 2,600 (SW)	Residence 3,400 (SW)
Rocky Mountain-DeBeque	Residence 4,700 (SW)	Residence 4,800 (NW)	-----
WestGas-DeBeque	Residence 1,900 (NE)	Residence 2,800 (NE)	Residence 3,300 (W)
TransColorado-Olathe[2]	N/A	N/A	N/A
Rocky Mountain-Big Gypsum[2]	N/A	N/A	N/A
Rocky Mountain-Maverick[2]	N/A	N/A	N/A
Rocky Mountain-Redvale[2]	N/A	N/A	N/A
Dolores Alternate 1	Abandoned Ranch 1,050 (SE)	Summer Cabin 4,500 (SW)	Summer Cabin 4,500 (SW)
Dolores Alternate 2	Portable Trailer House 2,250 (N)	Residence 2,300 (N)	Residence 2,400 (NW)

[1]Receptors are numbered by proximity to the compressor station.

[2]There were no known noise-sensitive receptors identified within 1-mile radius of the Questar-Piceance, TransColorado-Olathe, Rocky Mountain-Redvale, and Big Gypsum.

Note: Receptors were identified during a housing survey in January 1991.

TABLE 3-4

TransColorado Gas Transmission Project
Landslide Features and Potentially Active Faults
Crossed by Proposed Action and Agency Preferred Alternative

Milepost	Total Miles	Feature	Location
Proposed Route			
65.0 - 69.8	4.8	Landslide deposits[1]	Grand Mesa
69.8 - 71.0	1.2	Active landslide area[2]	Grand Mesa
71.0 - 71.3	0.3	Landslide deposits[1]	Grand Mesa
71.8 - 72.0	0.2	Active landslide area[2]	Grand Mesa
72.0 - 73.0	1.0	Landslide deposit[1]	Grand Mesa
73.0 - 74.4	1.4	Active landslide area[2]	Grand Mesa
74.4 - 76.2	1.8	Landslide deposits[1]	Grand Mesa
143.0 - 151.0	8	Landslide deposits[1]	Patterson Mountain area
136.0	0.1	Potentially active fault	Near Oak Hill
146.0	0.1	Potentially active fault	Near Sheep Creek
150.0	0.1	Potentially active fault	Near Patterson Mountain
197.6 - 198.4	0.8	Active landslide area[2]	Ryman Creek Divide area
225.2 - 225.4	0.2	Landslide deposit[1]	Dolores River
238.0 - 238.6	0.6	Landslide deposit[1]	Chicken Creek
240.5 - 241.0	0.5	Landslide deposit[1]	West Mancos River
243.8 - 244.0	0.2	Landslide deposit[1]	Middle Mancos River
Agency Preferred Route			
65.0 - 69.8	4.8	Landslide deposits[1]	Grand Mesa
69.8 - 71.0	1.2	Active landslide area[2]	Grand Mesa
71.0 - 71.3	0.3	Landslide deposits[1]	Grand Mesa
71.8- 72.0	0.2	Active landslide area[2]	Grand Mesa
72.0 - 73.0	1.0	Landslide deposit[1]	Grand Mesa
73.0 - 74.4	1.4	Active landslide area[2]	Grand Mesa
74.4 - 76.2	1.8	Landslide deposits[1]	Grand Mesa
136.0	0.1	Potentially active fault	Near Oak Hill
146.0	0.1	Potentially active fault	Near Sheep Creek
150.0	0.1	Potentially active fault	Near Patterson Mountain

TABLE 3-4 (CONTINUED)

Milepost	Total Miles	Feature	Location
143.0-151.0	8	Landslide deposits[1]	Patterson Mountain Area
182.7-186.4	3.7	Landslide deposits[1]	Northwest of Lone Cone
186.4-187.4	1	Active landslide area[2]	Divide between West Naturita Creek and Morrison Creek (tributary to Disappointment Creek)
197.4 - 198.8	1.4	Landslide deposit[1]	Beaver Mountain
209.7 - 211.0	1.3	Landslide deposit[1]	Dolores River
217.8 - 218.5	0.7	Landslide deposit[1]	Lost Canyon
221.8 - 222.0	0.2	Landslide deposit[1]	Turkey Creek
224.2 - 224.5	0.3	Landslide deposit[1]	Chicken Creek
225.1 - 225.6	0.5	Landslide deposit[1]	West Mancos River
228.4 - 228.6	0.2	Landslide deposit[1]	Middle Mancos River

[1]Landslide deposits: areas underlain by landslide debris which do not show evidence of recent movement. These areas represent low risk for impacts from pipeline construction.

[2]Active landslide areas: these areas show evidence of recent landslide movement based upon field observation of disrupted vegetation (i.e., leaning trees, exposed scarps). Active landslide areas are characterized by the presence of numerous small slumps and slides that are limited in areal extent, depth of displacement, and distance of soil movement. Active slides occur intermittently along route segments identified as active landslide areas. These areas represent a high risk for impacts from pipeline construction and may require special mitigation measures.

deposits are crossed by the agency preferred route.

Hydrologists and engineers from the USFS, ENSR, City of Palisade, and TransColorado examined the proposed route within the Palisade watershed. Two areas of potential active landslide concern that were identified from this investigation in the Palisade watershed included the slopes above Rapid Creek, and below the Palisade water supply springs in the Rapid Creek Drainage; and adjacent to an existing road approximately 0.25 mile downslope from Kruzen Springs. The results of this investigation indicated that careful design will be required to insure long-term slope stability in the Rapid Creek drainage; a minor reroute upslope from the existing road would avoid a recent slide area near Kruzen Spring.

Site-specific slope stability investigations (Sergent, Hauskins & Beckwith [SHB] 1991) were conducted on several steep side slopes associated with stream crossings in the Mancos River drainage. The purpose of these studies was to determine whether side slopes were sufficiently stable to install a pipeline and to recommend measures, where required, to avoid unstable areas, or to increase slope stability by altering the drainage pattern. The following is a synopsis of the existing conditions at these crossings.

Geotechnical studies were conducted at the following locations along the proposed route: Dolores River Milepost (MP) 225.1 to MP 225; Lost Canyon MP 230.0 to MP 231.2; Chicken Creek MP 238 to MP 238.5; West Mancos River MP 240.5 to MP 241; and Middle Mancos River MP 243.5 to MP 244. The lithology of the slopes above these stream crossings is similar, consisting of interbedded sandstones and claystones. Slopes range from 36 to 90 percent on the steepest portions. Shallow soil creep was observed in the weathered Morrison and Burro Canyon Formations below the cliff-forming Dakota Sandstone at the Dolores River, Chicken Creek, West Mancos River, and Middle Mancos River crossings. Evidence of soil creep includes hummocky topography that has been accentuated by game and livestock trails. Other evidence of soil creep includes tilted fence posts and some curving of evergreen trees and tall shrubs in response to periodic shallow soil movement. No evidence of soil creep was observed at the Lost Canyon crossing. None of these crossings would be located in areas of young, active landslides.

Laboratory tests of soil cores from these slopes indicated that these soils are quite cohesive and stable under dry conditions. If the steepest slopes (those on the order of 50 to 57 percent) are allowed to become fully saturated, then some slope instability is possible.

Geotechnical studies were conducted at the following locations along the agency preferred route: Dolores River MP 209.7 to MP 211; Lost Canyon MP 217.8 to MP 218.5; Turkey Creek MP 221.8 to MP 222; and Chicken Creek MP 224.2 to MP 225.5. West Mancos River MP 225.1 to MP 225.6; Middle Mancos River MP 228.4 to MP 228.6. Lithology and slope steepness for these crossings are similar to that described for the proposed route. Evidence of shallow soil creep was observed in the vicinity of all six of these crossings. However, none of these crossings would be located in areas of young, active landslides. Soil cohesion test results are equivalent to those found for the proposed route crossings. The principal difference between the proposed and agency preferred routes is that the agency preferred route would require construction across a greater distance of steep slopes (50 percent or more) than the proposed route. This difference would be approximately 1,500 feet. Slope steepness becomes important as a stability factor only under saturated soil conditions, which rarely occur.

Incised channels were also considered a potential hazard for the proposed and agency preferred routes. Tables 2-4 and 2-10 depict that 66 miles of incised channels are crossed by the proposed route and 44 miles by the preferred route. Aerial photographs and topographic maps were used to delineate areas of possible hazard. Field checks were also conducted in the fall of 1990. Drainage areas were evaluated based on the observation of ongoing incision, the frequency of incised channels, and the degree of incision or erosion. Areas along the proposed route where young, actively down-cutting incised channels may present stabilization problems include the Roan Creek drainage (MP 37 to MP 42); and the Ryman Creek drainage (MP 190 to MP 198); the agency preferred route would be the same as the proposed route except that the Ryman Creek segment would be avoided.

Although the area that would be crossed by the proposed and agency preferred routes is not generally considered one of intense seismic activity (Stover et al. 1988), several relatively low-magnitude earthquakes have been recorded in the region in recent times. The nearest recorded earthquake measured a Richter scale magnitude of 4.0 near MP 164.8 along the preferred route. The number of potentially active faults is listed on Tables 2-4 and 2-9. For purposes of pipeline construction, the Federal Energy Regulatory Commission (FERC 1988) has defined active faults as "those in which displacement is evident in Holocene deposits." The faults along the proposed route cannot be classified as active under this definition, until the offset of Holocene deposits can be demonstrated. However, the lack of evidence does not preclude the potential for movement along these faults. There are three potentially active faults on either route.

Soil liquefaction is a phenomenon associated with earthquakes. Under certain conditions, soils may lose their ability to support structures during earthquake events; soil liquefaction is a major cause of earthquake damage (Youd and Perkins 1987). Soil liquefaction can result from a combination of factors: soil type, soil saturation, and amount of horizontal ground acceleration from an earthquake. The soil liquefaction potential is low in areas that would be crossed by the proposed and agency preferred routes because horizontal ground accelerations expected from a maximum credible earthquake are not expected to be severe enough for liquefaction to occur (Algermissen et al. 1982).

LEASABLE MINERALS

The proposed route would cross areas underlain by leasable minerals, including conventional oil and gas, coal, oil shale, and coalbed methane.

Oil and Gas

The proposed and agency preferred routes would cross a number of oil and gas fields and travel adjacent to several producing areas (Scanlon 1983; Finch et al. 1989). Most of the oil and gas fields are in the Piceance Basin or in the San Juan Basin. A few fields that would be crossed are in the Paradox Basin and Four Corners Platform. The miles of oil and gas fields crossed are presented in Tables 2-4 and 2-9; 35 miles are crossed by the proposed route and 34 miles by the agency preferred route.

The Piceance Basin is primarily a gas production area (Mallory 1972). Oil is of secondary importance, but is produced from the same formations that produce gas (BLM 1984a). Oil and gas reservoirs occur in the Morrison Formation, Dakota Sandstone, Mancos Formation, Mesaverde Group, Wasatch Formation, and the Green River Formation. The Piceance Creek Field produces gas from the Green River and Wasatch Formations.

The San Juan Basin is the other major oil and gas production basin that would be crossed by the proposed and agency preferred routes. Production from the basin is mainly from the Entrada Sandstone, Dakota Sandstone, Gallup Sandstone, Mesaverde Group, Pictured Cliffs Sandstone, and the Fruitland Formation (Finch et al. 1989). Conventional gas reservoirs have produced about 17 trillion cubic feet (TCF) of gas and, ultimately, production should reach 29 TCF.

The Four Corners Platform is located northwest of the central part of the San Juan Basin. Structurally, the area is distinct from the basin, but generally production from the platform is included with the rest of the basin. The Four Corners Platform produces oil from the Dakota and Mesaverde Formations and gas from the Paradox Formation (Mallory 1972). The Paradox Basin is a northwest- to southeast-trending area that covers about 19,000 square miles. The complex geology of the basin has made exploration difficult, and the Paradox Basin remains secondary to the Piceance and San Juan Basins in terms of oil and gas resources.

Coalbed Methane

The San Juan Basin and the Piceance Basin are of major importance in unconventional natural gas resources. Development of coalbed methane gas has become an important activity in the last 10 years, especially in the San Juan Basin. The natural process that turns organic material into coal results in methane that is trapped in the coal seams (Tremain 1984). Normally, trapped methane is a hazard during underground coal mining, but in areas where coal is too deep to be mined economically, the methane is becoming an attractive exploration target. The proposed and agency preferred routes cross 35 miles of coalbed methane resources.

In the Piceance Basin, the Mesaverde Group contains coalbeds that have high potential for coalbed methane production. The aggregate thickness of the coalbeds in the Mesaverde is up to 200 feet (Tremain 1984). These coal seams can be as much as 9,000 feet deep. The coalbed methane potential of the Piceance Basin is considerable. As much as 84 TCF could be trapped in the coal of the basin, many times more than the conventional gas that has been produced in the basin to date (Kuuskraa and Brandenburg 1989).

The Piceance Basin, which is the primary natural gas supply region for the TransColorado pipeline, has experienced a very rapid increase in wells completed over the past 5 years (1986 to 1990) in response to the coalbed methane tax incentive program. Over this period, the number of new wells completed (348) far exceeds the number of wells abandoned and taken out of production (69). Gas sales from the 4 Colorado counties (Delta, Garfield, Mesa, Rio Blanco) that comprise most of the Piceance Basin have nearly doubled over the same 5-year period from 23,715 million cubic feet in 1986 to 43,954 million cubic feet per year in 1990 (Colorado Oil and Gas Commission 1986, 1987, 1988, 1989, 1990).

In the San Juan Basin, the most favorable coalbed methane formations are the Fruitland Formation and the Menefee Formation (Rightmire et al. 1984). The methane resource in the Fruitland is estimated to be 50 TCF, which is more than the conventional gas reservoir resource in the San Juan Basin (Kuuskraa and Brandenburg 1989). The potential of the Menefee Formation is 38 TCF, but it remains of secondary importance to the Fruitland Formation. As of 1989, proven methane reserves of the Fruitland were estimated at 0.9 TCF.

Oil Shale

In the Piceance Basin, the proposed and agency preferred routes would cross the Green River Formation, which contains potentially large

reserves of oil shale. The Piceance Basin may contain as much as 960 billion barrels of oil (BLM 1984a). Tables 2-4 and 2-9 indicate the proposed and agency preferred routes cross 37 miles of high-grade oil shale deposits.

Coal

The proposed and agency preferred routes cross portions of the Piceance, Paradox, and San Juan coal-bearing basins. Coal-bearing strata are also present in areas of the Uncompahgre Uplift and Four Corners Platform traversed by the pipeline route (Mallory 1972). Much of the coal in these areas is deeply buried and recovery is not economically feasible, although several coal fields with economic potential do exist. Coal in the Grand Mesa and Book Cliffs coal fields of the Piceance Basin occurs in the Upper Cretaceous Mesaverde Formation. Coal fields that would be traversed by the proposed and agency preferred routes in the Uncompahgre Uplift, the Paradox Basin, and the San Juan Basin are also hosted in Upper Cretaceous rocks. In the Paradox Basin, the Tongue Mesa field occurs in the Dakota and Fruitland-Kirkland Formations, and the Nucla-Naturita field has coal in the Dakota Formation. The Durango field in the San Juan Basin contains coal in Dakota, Menefee, and Fruitland Formations (Jones et al. 1978).

Although much of the area crossed would contain potential coal resources, there are few areas where information concerning recoverable reserves is available. According to the U.S. Bureau of Mines (Cochran 1991), coal reserve information is site-specific, and there is no regional coal reserve database for the areas crossed by proposed and preferred routes. Tables 2-4 and 2-9 indicate that the proposed and agency preferred routes would cross 6 miles of strippable reserves. These reserves are not currently under lease.

A minerals lease status investigation was conducted in the BLM Colorado state office to determine whether the proposed or agency preferred routes would cross coal currently under lease. The U.S. Bureau of Mines was also contacted as part of this investigation (Stone 1991). The BLM in Grand Junction found that the proposed route and the agency preferred route would cross approximately 0.3 mile of the southeast corner of the Powderhorn coal lease (C-029889) near MP 71 (T11S, R97W, S18) in Mesa County, Colorado. The BLM has imposed as part of the agency's stipulations that the right-of-way (ROW) holder may be required to reroute to avoid this lease area (see Chapter 2, Table 2-12). No other project conflicts with coal lands currently under lease in Colorado were identified.

The BLM in Farmington, New Mexico (Yost 1991), performed a comparable survey for lands crossed by the various pipeline routes in New Mexico. The final EIS proposed and agency preferred routes would not cross any active surface mine coal bases; TransColorado rerouted the pipeline since publication of the draft EIS to avoid the La Plata Mine Coal base at MP 275.6 of the proposed route in San Juan County, New Mexico.

MINERAL MATERIALS

Sand and gravel deposits may be encountered in alluvial deposits adjacent to streams or on terraces above incised valleys. Sand and gravel quarrying operations exist near the proposed and agency preferred routes. In Colorado, quarries were located by using maps published by the Colorado Geological Survey (Schwochow 1981). It was not determined whether quarries were active. In New Mexico, topographic maps were used to locate sand and gravel operations near the proposed route and agency preferred route. No sand and gravel quarries were found along or near these areas. There are seven mineral material quarries within 0.25 mile of the proposed

route and eight within 0.25 mile of the agency preferred route.

WATER QUALITY AND QUANTITY

Surface Water

Major River Basins

Six major drainage basins are crossed by the proposed route and agency preferred route. They are: the White, Colorado, Gunnison, San Miguel, Dolores, Animas, and San Juan River Basins.

Colorado and New Mexico Water Quality Classifications

The State of Colorado has established stream classifications and associated water quality standards based on considerations of public health, water supplies, recreation, and protection of aquatic life. Appendix C provides applicable water quality classifications for the major rivers and perennial streams crossed by the proposed route and agency preferred route in Colorado.

The State of New Mexico has established stream classifications and associated water quality standards for surface water bodies across the state. Appendix C provides applicable water quality classifications for the major rivers that would be crossed by the proposed or agency preferred routes in New Mexico.

River and Stream Crossings

The proposed route and the agency preferred route for the TransColorado pipeline would each cross five major rivers, the Colorado, Gunnison, San Miguel, Dolores, and Animas. Five major streams (Piceance Creek, Roan Creek, Plateau Creek, West Mancos River, Middle Mancos River) would be crossed by the proposed route and the same major streams by the agency preferred route. Appendix C, Tables C-1 and C-2 list the rivers, streams, and wetlands that would be crossed by the proposed route and agency preferred route. Applicable water quality classifications are also provided in Appendix C.

One major river, two major streams, and two minor streams crossed by the proposed route and the agency preferred route are designated as High Quality, Class 2. The Dolores; West, Middle, and East Mancos Rivers; and Chicken Creek are designated as waters that shall be maintained (unless exempted) at their existing water quality. Class 2 waters may not be degraded under any circumstances in a way that would interfere with or become injurious to existing classified uses.

The river sediments in the Dolores and San Miguel Rivers may be contaminated with mine wastes, and sediments in the Animas and La Plata Rivers may be contaminated with polycyclic aromatic hydrocarbons (PAH) from contaminated groundwater.

Tables C-1 and C-2 list channel widths and substrate conditions, where known. Substrate types at the crossing locations are dependent on local geologic conditions, flow rates, and topography. The rivers crossed by the proposed and agency preferred routes are anticipated to have either sand and silt or gravel, rubble, boulder beds. Perennial stream banks and channels are anticipated to be stable where riparian vegetation is established.

Municipal Watersheds and Water Supplies

The proposed and agency preferred routes would cross watersheds on the north and west sides of Grand Mesa that supply water to the towns of Palisade, Grand Junction, Clifton, and Whitewater. A cooperative management plan is being written

for the west slopes of the Grand Mesa. The plan area, which includes the two watersheds, encompasses approximately 50 square miles of land owned or administered by the BLM, USFS, the City of Palisade, the City of Grand Junction, and other private landowners. The plan is being written cooperatively by the BLM, City of Grand Junction, and others, such as the USFS and Colorado Division of Wildlife (CDOW). The proposed goals of the plan are to protect the municipal watersheds, protect critical wildlife habitat, provide for public access, and reduce problems associated with public use, such as trash dumping, unsafe target shooting, and uncontrolled motorized use. Two municipal water supply wells are located within 0.25 mile of the routes. The following is a description of the physical characteristics of these water supply systems and wells, and the placement of the pipeline routes in relation to these systems. Other municipal water supply canals and pipelines are discussed under Other Facilities.

Palisade Municipal Water Supply

The town of Palisade, Colorado, is located at the mouth of DeBeque Canyon where the Colorado River enters Grand Valley. The town obtains water from the Rapid Creek Basin, which drains the northwest flank of Grand Mesa, and from Kruzen Springs located just below Palisade Point at the western end of Grand Mesa. Water is diverted from several springs in the upper portion of Rapid Creek and Cottonwood Creek, a major tributary of Rapid Creek, to several reservoirs (Brooks 1986). Water is then piped from the reservoirs or directly from springs down the watershed to a treatment plant for subsequent delivery to the town.

The Palisade watershed is comprised of a mixture of public and private lands. The BLM has developed a planned management action for municipal watershed protection to, "limit surface-disturbing activities in the Palisade and Grand Junction municipal watersheds..." (BLM 1987c) and to ensure that no surface occupancy will be allowed on slopes greater than 40 percent. The primary objectives of these measures are to minimize the erosion potential within these watersheds. Chapter 1 and Chapter 2 of this document provide additional discussion of the Grand Junction Resource Management Plan (RMP) and its associated protection measures.

The occurrence of springs in the Rapid Creek watershed is a direct function of the geology of the basin. The top surface and the slopes of Grand Mesa are underlain (starting from the top) by a sequence of glacial till, basalt, Tertiary age sediments, and Cretaceous age sediments. Due to the structural weakness of the sediments underlying the mesa, a number of failures have occurred along the flanks of the mesa, initiating as slump failures and then continuing downslope as earth flows or mud flows, depositing a mantle of landslide debris on the upper slopes of the mesa (Yeend 1969). About 45 percent of the Rapid Creek watershed is underlain by landslide deposits. All the springs within the Rapid Creek Basin occur in the landslide deposits with the largest of the springs issuing from the downstream edge of the deposits.

The glacial till that occurs as a thin veneer over the basalt caprock of the mesa is relatively impermeable (Brooks 1986), causing most of the precipitation that falls on the top of the mesa to run off as stream flow or to collect in reservoirs. The basalt is also relatively impermeable, thus impeding the infiltration and subsequent flow of groundwater into the underlying sedimentary rocks.

The landslide debris is an unconsolidated deposit composed of blocks of basalt and broken rubble of the underlying sedimentary rocks. Consequently, the debris is likely to have a variable permeability, although it is expected to be fairly high, perhaps approximately two to three

orders of magnitude higher than the underlying sedimentary rock (Brooks 1986). Due to the great difference in permeability between the landslide deposits and the underlying rocks, it is unlikely that there is significant flow of groundwater between the two. Therefore, the water that occurs in the landslide deposits is derived primarily from infiltration of direct precipitation. According to Brooks (1986), precipitation that falls on the landslide deposits infiltrates to the contact with the less permeable underlying bedrock, moves laterally downhill through the deposit, and discharges to springs near the lower boundary of the landslide deposits.

The proposed route and the agency preferred route would cross the Rapid Creek Basin through the area underlain by the landslide deposits. The length of the routes in this basin is roughly 4.2 miles and would pass approximately 0.25 mile and 160 vertical feet below Kruzen Springs.

Grand Junction Water Supply

The City of Grand Junction, Colorado, currently obtains water from the Kannah and North Kannah Creek watersheds, which drain the southwest flank of Grand Mesa. Water is stored in reservoirs and delivered via pipeline to a filtration plant located about 3.5 miles northwest of Whitewater. The water system for Grand Junction also supplies water to the towns of Clifton and Whitewater. Landslide deposits occur in the headwaters of Kannah and North Kannah Creeks (Whitney 1981; Williams 1964), suggesting that some of the water in the basins is derived from spring discharge emanating from the landslide deposits in a manner similar to the Palisade watershed. Landslide deposits comprise a smaller percentage of the Kannah Creeks watersheds, indicating that a greater portion of water is from surface runoff. The proposed route and agency preferred route would cross the Kannah Creek watershed at the extreme lower end, well below the sources of water for the system. The pipeline routes would cross the aqueduct carrying water from the watershed to the filtration plant.

The City holds water rights in the Sink and Whitewater Creek basins that are currently used for agricultural purposes (Trainor 1992). There are no developed municipal collection systems in either basin. Water is currently diverted from Whitewater Creek into the Brandon Ditch that delivers water to the west down Long Mesa. The City plans to divert this water into the North Kannah Creek watershed for use in Grand Junction's water supply. The Somerville Ranch property is owned and operated by the City of Grand Junction. This property, located east of Grand Junction and crossed by the proposed route and the agency preferred route, was acquired for water rights and to provide public recreational opportunities and protect the pristine environment (McCurry 1990). No developed recreational facilities are located on this property. The City could divert water from the Somerville Reservoir into the Ute Water Conservancy District system through interconnections with the Palisade water supply system. Water in Sink Creek is diverted into Guild Reservoir and is currently used for stock-watering purposes. The City may divert this water into Brandon Ditch or down Sink Creek to the Colorado River.

Municipal Wells

Two municipal water wells are located within 0.25 mile of the proposed route; one of these is located approximately 4 miles southeast of the town of Dolores on Lost Creek. The second municipal well is located approximately 9 miles northeast of Farmington, New Mexico, along the Animas River. The well is found in the valley-fill associated with the Animas River, and occurs close to the river bed. The town of Farmington obtains most of its water from Beeline Reservoir.

Other Facilities

The proposed route would cross the Dolores River, approximately 2.5 miles upstream of the potable water supply intake for the town of Dolores (Butler 1991). The proposed and agency preferred routes would cross the Animas River in New Mexico less than 0.75 mile upstream of the Farmers Ditch intake. The Farmers Ditch is one of two water intakes to Farmington Lake, which is the major potable water supply storage facility for the city of Farmington. Farmington Lake is located at the southern end of the Farmington Lake watershed. This watershed is managed by the BLM to protect the water supply from contamination. The routes would cross the Animas River about 2 miles upstream of a pump station that serves as an alternative water supply intake of the town of Aztec. At proposed route MP 293.7, the route crosses Aztec Ditch, which serves as the main gravity feed to Aztec's water supply.

Bureau of Reclamation Water Projects

The proposed route and some of the route variations would cross existing irrigation canals owned or administered by the Bureau of Reclamation (BuRec). The proposed route would cross the existing Mancos-Jackson Gulch Dam inlet canal at MP 240.1 (BuRec 1991).

The agency preferred route would cross the Jackson Gulch Dam inlet canal at MP 225.3. The San Juan Valley variation would cross the Dolores-Towaoc Canal (part of the Dolores Project) at MP 9.5, MP 14.0, MP 15.0, and MP 15.7. The Animas Valley variation would cross canals supplying the Florida project at MP 51.7, 53.0, and 57.1 (BuRec 1959, 1986, 1987, and 1991).

The Animas-La Plata project would develop water for irrigated agriculture and municipal and industrial use in both Colorado and New Mexico. The construction of this project would include two proposed dams and reservoir systems, the Ridges Basin and the Southern Ute. In addition, system water transport structures, including canals, conduits, pipelines, and a tunnel, would be constructed. The proposed and agency preferred routes would cross future water supply canals for this project at proposed Southern Ute dam and reservoir at proposed route MP 274.9 and MP 277.7 in New Mexico (BuRec 1986).

BuRec is constructing the Animas-La Plata project and has been consulted in regard to the proposed pipeline project. It has suggested mitigation measures that would protect its interests for existing and future projects. These measures have been incorporated into Chapter 2, Environmental Protection Measures. TransColorado would obtain a ROW grant for crossing any of the BuRec's project canals.

WETLANDS

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and, under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands occurring within the agency preferred and proposed pipeline routes are typically located along perennial and intermittent streams and rivers. These wetlands vary in width, depending primarily on the confinement provided by the surrounding topography and the flow regime. Other types of wetlands found in the areas include areas around seeps and springs, unlined irrigation ditches, and stock ponds.

The extent of Jurisdictional Wetlands, those defined and regulated under Section 404 of the Clean Water Act, have not been delineated for the proposed project. Delineating Jurisdictional Wetlands requires extensive field review, which would be conducted prior to construction, as

required by the U.S. Army Corps of Engineers (COE), the Section 404 regulatory agency. Tables C-1 and C-2 in Appendix C provide a list of wetlands crossed by the proposed route and the agency preferred route based on vegetation characteristics, as described in the National Wetland Inventory (NWI) classification system (Cowardin et al. 1979), from aerial flyovers and aerial photography. Based on the NWI, the proposed route would cross 1.4 miles of wet/meadow hayland, 0.2 mile of shrub wetland, and 1.5 miles of forest wetland. The agency preferred route would cross 1.6, 0.1, and 1.6 miles, respectively. Since the NWI method, as conducted, was based solely on vegetation characteristics, and Jurisdictional Wetlands are defined from soil, water, and vegetation criteria, the extent of Jurisdictional Wetlands crossed by the agency preferred and proposed routes may actually be less than those just defined.

The primary functions of wetlands in this region are sediment retention, which reduces the suspended sediment loads in streams; fish and wildlife habitat (provided by flowing streams, and riparian trees, shrubs, and wet meadows); livestock forage; and recreation (fishing, hunting). Because of the productive understory, nearly all wetlands crossed by the project are subject to intensive year-round or seasonal grazing. As a consequence, the understory vegetation on seasonally wet sites often consists of grazing-tolerant grasses, such as Kentucky bluegrass and quackgrass. On sites that are wet year-round, the native sedges, rushes, and spikerushes effectively tolerate grazing.

The wetlands most sensitive to disturbance in terms of fulfilling the wetland functions just described include riparian woodlands, beaver ponds, and spring meadows and seeps. On ungrazed sites riparian trees regenerate quickly. On grazed sites riparian trees require a long period to regenerate after they are cut, and natural reproduction is very uncertain. Beaver ponds represent important stream sediment traps.

SOILS

Soils in the region crossed by the proposed and agency preferred routes have formed from weathered sandstone, shale, and siltstone on side slopes and ridges. These routes would cross unconsolidated water-deposited soils on valley floors. The predominant uses of soils on the lands crossed by the project are for rangeland, forestry, and irrigated and dryland croplands. The following section on prime and unique farmlands describes the locations where existing or potential high-value lands would be crossed.

Soil stabilization and revegetation after disturbance may be difficult along several portions of the proposed and agency preferred routes because of constraints caused by steep slopes, soil chemistry limitations on plant growth, sparse precipitation, and excessive rockiness. These constraint areas have been determined from published soils information and tabulated by route in Tables 2-4 and 2-9. The following sections briefly summarize the type of constraint and the major locations where the constraints occur.

Salinity/Alkalinity

Saline soils contribute natural and agricultural runoff that increases the salinity of the Colorado River. The United States adopted a policy of limiting salinity concentrations of the Colorado River in the lower basin and Mexico. As a consequence, the United States is actively trying to reduce the salinity load in the Colorado River system by eliminating salt sources, and conducting watershed erosion control programs to reduce the overland transport of saline sediment. BuRec has classified the Roan Creek Valley, Plateau Creek Valley, the Grand Valley near Grand Junction, and the Gunnison River

Valley near Delta as moderately saline. BuRec has also classified portions of the Disappointment Valley and Dry Creek Basin in Dolores County as moderately saline (BLM 1977). These moderately saline soils are derived from marine shales of the Wasatch Formation and the Mancos shale. Potential contribution to Colorado River salinity from construction of the pipeline across these saline soils was raised as a project scoping issue. The proposed route would cross 58 miles of saline soils; the agency preferred route would cross 42 miles.

Alkali soils containing elevated levels of exchangeable sodium also adversely affect plant establishment and growth, and soil structure. Common problems associated with alkali soils include high shrink-swell potential; very poor water-holding capacity and increases in soil erosion potential, and corresponding high runoff potential; and high clay and silt content, which exacerbates sediment losses. These soils are subject to mechanical compaction, especially during periods of high soil moisture, which decreases water infiltration capacity and increases soil erosion potential. Other problems include excessive accumulation of certain alkaline salts at the soil surface from evaporation. High levels of alkaline salts in the surface layer discourage establishment of many native species and allow the establishment of exotic noxious weeds, such as halogeton.

In conjunction with preparation of this final EIS, a field study was conducted in the Spring Creek Basin to determine levels of soil salinity in relation to trenching depth. It was found that the sampled upland soils were generally non-saline (as indicated by electrical conductivity), particularly near the surface. Salinity and alkalinity were highest in channel banks where higher levels of soil moisture and evaporation were present. This finding indicates that stabilization of channel banks during pipeline construction is the primary measure to control increases in salinity levels followed by adequate rehabilitation of the upland basin floor soils.

The portions of the project where saline/alkaline soils are most prevalent (i.e., Grand Valley, Gunnison River Valley) also experience the least annual precipitation (often less than 8 inches). Soil limitations, combined with sparse precipitation, increase the risk of revegetation failure.

Steep Slopes

Steep slopes are a second constraint along the proposed and agency preferred routes. Steep slopes are discussed in the Topography section of this chapter. Miles of steep slopes crossed are indicated on Tables 2-4 and 2-9. Steep slopes increase the soil erosion hazard; south-facing steep slopes are commonly very warm, and available soil moisture is limited for plant growth.

Rocky/Stony Shallow Soils

Rocky soils (those with bedrock exposures) and soils with a disproportionately high profile content of stones that cannot be routinely removed by trenching equipment are encountered along the route. Rocky soils are prevalent along ridges in the Piceance Basin; the Roan Cliffs above Roan Creek; the side slopes of Grand Mesa; and the San Miguel, Dolores, and Mancos River crossings. Many rocky areas coincide with steep slope areas where the pipeline crosses areas of sandstone and siltstone outcrops. The proposed route would cross 120 miles of shallow/rocky soils; the agency preferred route would cross 114 miles.

Wet Soils

Wet soils occur at stream crossings, in swales formed from irrigation runoff, and below springs. These saturated soils are addressed in the Wetlands section of this chapter. Tables 2-4

and 2-9 summarize the wetland soils that would be crossed by the project, and Appendix C lists wetlands crossings.

Agricultural Soils

Maintenance of irrigated land for agricultural productivity after pipeline construction was a major public scoping issue. Soil characteristics of concern are subsurface rocks that may require excavation and removal, topsoil depth, and soil subsidence in the trench.

PRIME FARMLAND AND FARMLANDS OF STATEWIDE IMPORTANCE

Prime farmland is land that requires irrigation, and has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Farmlands of statewide importance are lands that are not prime farmlands but are considered productive lands if erosion control methods, irrigation, and/or moderate management practices are implemented (U.S. Soil Conservation Service [SCS] 1980a, 1982a). Tables 2-4 and 2-9 list the mileages of prime farmland and farmland of statewide importance that occur along the proposed route and the agency preferred route (SCS 1979a, 1979b, 1979c, 1979d, 1980b, and 1982b). These important farmland areas predominantly occur in four areas along the routes: the Grand Valley, San Miguel Canyon, Dolores River Basin, and La Plata and Animas River Valley areas. The majority of these farmlands are used to grow alfalfa and small grains, although some specialty crops, such as corn (Delta area), peaches, and apples (Grand Valley area), are also grown.

VEGETATION

Environmental factors, such as elevation, soil type, and precipitation, largely influence the location of each vegetation type.

A total of 13 vegetation types would be traversed by the proposed and agency preferred routes. They include: (1) sagebrush, (2) saltbush, (3) pinyon-juniper, (4) pinyon-juniper (chained), (5) mountain shrub, (6) conifer-pine, (7) conifer-spruce/fir, (8) conifer-aspen, (9) conifer-Douglas fir, (10) grassland, (11) greasewood, (12) agricultural land, and (13) riparian community. Tables 2-4 and 2-9 list the agricultural lands and timber lands and the associated mileages that would be crossed by these routes.

The following information provides habitat descriptions and dominant plant species that are commonly associated with each vegetation type. This information was incorporated from Harrington (1954), USDA-REA (1983), Brown (1982), and BLM (1978).

- Sagebrush Community. The sagebrush community is usually found adjacent to the pinyon-juniper communities in similar elevation and precipitation zones. Big sagebrush and black sagebrush are the dominant species with rabbitbrush occurring with less frequency. Other species include blue grama, galleta grass, bottlebrush squirreltail, bluegrass, Indian ricegrass, cheatgrass, globemallow, prickly pear, western wheatgrass, and Thurber's fescue.

- Saltbush Community. The saltbush community in western Colorado and New Mexico includes several species of saltbush and is typically located between the pinyon-juniper vegetative community and irrigated croplands found along river valleys. Saltbush exists in areas where annual precipitation

averages less than 10 inches. The dominant species include shadscale, mat saltbush, Gardner saltbush, and four-wing saltbush. Prevalent grasses are galleta, blue grama, and bottlebrush squirreltail.

- Pinyon-Juniper Community. The pinyon-juniper vegetative community is located in the foothills and mesa areas of southwest Colorado and northern New Mexico. The pinyon-juniper community is usually found where annual precipitation ranges from 10 to 16 inches and at elevations from 6,200 to 7,400 feet. In Colorado, the major overstory plants of this community are Colorado pinyon pine and Utah juniper. In New Mexico, the major overstory plants are Colorado pinyon pine and one-seed juniper. Such grasses as bottlebrush squirreltail, Indian ricegrass, and needle-and-thread grass generally dominate the understory in Colorado. In New Mexico, the dominant understory is blue grama and galleta grass. Open sagebrush areas consisting of big sagebrush, black sagebrush, and rabbitbrush are often interspersed with the pinyon-juniper community.

- Pinyon-Juniper (Chained) Community. The pinyon-juniper (chained) vegetative community is located predominantly in the southwestern part of Colorado. This vegetation type is a pinyon-juniper community that has been mechanically chained for the purpose of rangeland improvement. This vegetation type supports the same plant species as the pinyon-juniper type but has a lower density of pinyon pine and junipers and a higher density of grasses and forbs.

- Mountain Shrub Community. The mountain shrub community includes untimbered lands where shrubs other than sagebrush and rabbitbrush predominate. It generally occurs in areas with 14 to 18 inches of annual precipitation, at elevations from about 6,000 to 9,000 feet. The major overstory species are Gambel oak, common serviceberry, and mountain mahogany. The understory consists of bluegrass, smooth brome, and arrowleaf balsamroot.

- Conifer-Pine Community. The conifer-pine vegetative community ranges in elevation from 5,500 to 9,000 feet. Dominant plant species include ponderosa pine, aspen, and pinyon pine. Common understory species include fescue, bluegrass, junegrass, and western yarrow.

- Conifer-Spruce/Fir and Conifer-Douglas Fir Communities. The spruce/fir-Douglas fir forests are found within a range of elevations from 7,000 to 11,500 feet. The pure Douglas fir forest occurs at elevations from 6,000 to 8,500 feet. Aspen occurs throughout these coniferous forests at all elevations.

- Conifer-Aspen Community. The conifer-aspen community is found at the higher range elevations from 6,000 to 11,000 feet, which receive 20 inches or more of precipitation annually. Douglas fir, subalpine fir, blue spruce, Engelmann spruce, ponderosa pine, and aspen are the major overstory species. Understory species include fescue, junegrass, western yarrow, bluegrass, and alpine timothy.

- Grassland Community. This vegetation type is dominated by grasses and covers the majority of the route. Numerous shrub and forb species are also present. The common shrub species that occur in this vegetation type include various sagebrush species, four-wing saltbush, winterfat, snakeweed species, and soapweed. The herbaceous species that are associated with this vegetation type include bahia species, aster species, thistle species, gaura species, and sunflower species. Numerous cacti are commonly associated with this vegetation type. Common grass species

include various grama species, Arizona fescue, galleta, Indian ricegrass, and alkali sacaton.

- Greasewood Community. The greasewood community occurs in a narrow band along water courses within a wide range of elevations from 3,600 to 6,500 feet. Major plants representing this community are black greasewood, alkali sacaton, broom snakeweed, and wild daisy. Other plants common to this community include sagebrush, saltgrass, saltbush, foxtail barley, cocklebur, ragweed, and Russian thistle.

- Agricultural Lands. Agricultural lands include land used for dryland and irrigated crops and pasture.

- Barren Areas. Barren areas are nearly devoid of vegetation due to mining, erosion, or poor soil conditions. Plant species, such as saltbush, alkali sacaton, ring muhly, and ricegrass, commonly occur in disturbed areas and in areas with poor soil conditions.

- Meadow Community. The meadow community occurs most commonly in alpine areas over a wide range of elevations (7,500 feet to 12,000 feet). Major plants representing this community include prairie junegrass, carices, and Idaho fescue.

- Riparian Community. The riparian community occurs along rivers, creeks, and intermittent drainages at various elevations. Three types of riparian communities exist in the project area; they include forested, shrub-scrub, and herbaceous. The forested riparian communities are typically associated with perennial water courses and are primarily dominated by cottonwoods. The shrub-scrub riparian community may consist of riparian areas dominated by willows at higher elevations or greasewood at lower elevations. The herbaceous riparian community is dominated by herbaceous species, such as carices and rushes, and is typically located in mountain meadows or lowlands adjacent to perennial water courses.

Table 3-5 lists the noxious weeds that are known to occur in the project areas; these weeds include diffuse knapweed, spotted knapweed, Russian knapweed, musk thistle, Canada thistle, field bindweed, leafy spurge, tall whitetop, whitetop halogeton, hounds tongue, Russian thistle, and kochia (Beck 1991; Peterson 1991; Leininger 1988). Diffuse knapweed, spotted knapweed, Russian knapweed, Canada thistle, and Russian thistle are the major weed species in the project area and warrant the most attention.

FORESTRY

National forests in the vicinity of the proposed and agency preferred routes are the Uncompahgre, Grand Mesa and Gunnison National Forests and San Juan National Forest. The Uncompahgre National Forest is partially located in Montrose and San Miguel Counties. Portions of the San Juan National Forest are located in Dolores, Montezuma, and La Plata Counties. In addition to the national forests, wood resources are located in all 10 potentially impacted counties, on both state and private lands, and on lands under the jurisdiction of the BLM.

The forests in western Colorado and northwestern New Mexico can be generally described as pinyon-juniper in lower elevations with ponderosa pine, Douglas-fir, quaking aspen, Engelmann spruce, lodgepole pine, and subalpine fir at higher elevations (USFS 1987). According to the Forest Land and Resource Management Plan (forest plan) for the Grand Mesa, Uncompahgre, and Gunnison National Forests and the forest plan for the San Juan National Forest, the forests are not in optimum growing condition, citing that many

TABLE 3-5

TransColorado Gas Transmission Project
Noxious Weeds

Species	Distribution	Favored Sites
Diffuse Knapweed	S.W. Colorado (Montrose, San Miguel, Dolores, and Montezuma Counties) and N.W. New Mexico (San Juan Co.)	Soil disturbed sites and also rangeland areas
Spotted Knapweed	S.W. Colorado (Montrose, San Miguel, Dolores, and Montezuma Counties) and N.W. New Mexico (San Juan Co.)	Soil disturbed sites and also rangeland areas
Russian Knapweed	Throughout western Colorado and N.W. New Mexico (San Juan Co.)	Cultivated, grain and alfalfa fields, pastures, roadsides, irrigated ditches, and waste sites
Musk Thistle	S.W. corner of Colorado and N.W. New Mexico (San Juan Co.)	Moist alluvial soils
Canada Thistle	Throughout the state of Colorado and N.W. New Mexico (San Juan Co.)	Fertile, well-drained soils in wasteland areas, pastures, grain fields, and rangeland areas with swales and areas with deep, moist soils
Bindweed	Throughout state of Colorado	Cultivated fields, waste sites
Leafy Spurge	N.W. and S.W. Colorado (Rio Blanco, Garfield, Mesa, Montezuma, La Plata, and Dolores Counties) and N.W. New Mexico (San Juan Co.)	Moist areas, dry upland sites, shallow rocky soils, and drainageways
Tall Whitetop	N.W. Colorado	Wastelands, wet areas, ditches, and roadsides
Whitetop	N.W. Colorado	Wastelands, wet areas, ditches, and roadsides
Halogeton	Western Colorado and N.W. New Mexico (San Juan Co.)	Alkaline and disturbed areas
Russian Thistle	Throughout the state of Colorado and N.W. New Mexico (San Juan Co.)	Wastelands, disturbed sites, and fields
Kochia	Throughout the state of Colorado and New Mexico (San Juan Co.)	Wastelands, disturbed sites, and fields
Hounds Tongue	Primarily throughout the mountainous regions of Colorado	Disturbed sites in cultivated and forested areas that range in elevation from 5,000 to 9,000 feet

stands are "...overmature and therefore susceptible to losses from insect and disease infestations" (USFS 1983 and 1987).

Tables 2-4 and 2-9 indicate miles of timber lands and pinyon-juniper woodlands crossed by the proposed and agency preferred routes. The proposed route crosses approximately 29 miles of timber resources and 70 miles of pinyon-juniper woodlands, and the agency preferred route crosses 23 miles of timber lands and 59 miles of woodlands. Table 3-6 provides saw timber volume per acre, price per thousand board feet (MBF) (1990 dollars), and rotation age by timber type and forest. Table 3-6 also provides estimated per acre volumes and values for fuel wood.

LIVESTOCK GRAZING

The most common livestock operations in the area are cow/calf operations. Ewe/lamb operations also occur in the region. In general, cattle are grazed on Federal lands (grazing allotments) in the spring, summer, and fall. In the winter, cattle are generally fed or supplemented with hay or put out to graze on lower elevation pastures.

Federal lands in the region (BLM, USFS) are divided into grazing allotments where individual ranchers (permittees) can graze livestock according to agency guidelines. On BLM land crossed by the pipeline routes, grazing allotments range in size from around 1,500 to over 30,000 acres. The majority of livestock use on BLM lands occurs in the spring and fall. Higher elevation BLM ranges also may receive summer grazing. Some winter grazing occurs on lower elevation ranges, especially by sheep (Giffen 1991; Stovall 1991; Thygerson 1991). On USFS lands that would be crossed by the proposed and agency preferred routes, grazing allotments range in size from approximately 3,000 acres to approximately 20,000 acres. The majority of livestock use on USFS allotments occurs during the summer and fall (Baldwin 1991; Dickerson 1991).

The number of animals that can be grazed in an allotment is a function of forage production and the amount of forage that can be removed without decreasing range condition. Forage is allocated to livestock by animal unit months (AUMs). An AUM is the amount of forage required to sustain a cow/calf unit for 1 month. General AUMs by vegetation type are as follows (Baldwin 1991; Dickerson 1991; Giffen 1991; Jurgens 1991; Stovall 1991; Thygerson 1991):

Vegetation Type	Average AUM/Acre	Average Acre/AUM
Sagebrush	0.1	10.0
Saltbush	0.08	12.5
Desert Grassland	0.1	10.0
Mountain Shrub	0.13	7.7
Pinyon-Juniper	0.07	14.3
Conifer Forest	0.13	7.7

WILDLIFE

Major vegetation types that would be crossed by the proposed and agency preferred routes have been previously discussed. These vegetation communities support a wide diversity of wildlife species. Mountain shrub, pinyon-juniper, and sagebrush are important communities for wintering big game species. Riparian and wetland communities support the greatest diversity of wildlife species in the region. This discussion will focus on species of high economic and/or recreational importance. Tables 2-4 and 2-9 summarize the miles of key wildlife ranges that would be crossed by the proposed and agency preferred routes, and Tables 2-15 and 2-16 indicate recreationally and economically important wildlife species by milepost.

TABLE 3-6

TransColorado Gas Transmission Project
Forest Timber Characteristics

	Aspen	Ponderosa Pine	Spruce/Fir	Fuel Wood
Uncompahgre National Forest				
Includes Grand Mesa, Uncompahgre, and Gunnison National Forests				
Saw Timber Volume/acre (MBF)[1]	9	3	15	
Price/MBF (1990 $)[1]	13.75	20.35	41.75	
Rotation Age (years)[2]	80-100	50-180	50-180	
San Juan National Forest				
Saw Timber Volume/acre (MBF)[3]	10	5	19	
Price/MBF (5-year Average 1990 $)[3]	21.26	70.03	52.29	
Rotation Age (years)[4]	75-120	50-180	50-180	
White River Resource Area				
Fuel wood volume/acre (cords)				N/A
(price per cord $)				7.50
Uncompahgre Resource Area				
Fuel wood volume/acre (cords)				N/A
(price per cord $)				5.00
San Juan Resource Area[5]				
Fuel wood volume/acre (cords)				6-15
(price per cord $)				5.00
Grand Junction Resource Area[6]				
Fuel wood volume/acre (cords)				5-17
(price per cord $)				5.00
Farmington Resource Area				
Fuel wood volume/acre (cords)				6-12
(price per cord $)				7.00

[1]Jarrell 1991.

[2]USFS 1987, as amended.

[3]Jones 1991.

[4]USFS 1983.

[5]Christenson 1991.

[6]Stevens 1991.

Big Game

Big game animals occurring in the project area include elk, mule deer, antelope, bighorn sheep, black bear, and mountain lion. Elk, mule deer, and antelope key ranges (i.e., winter concentration areas, severe winter range, crucial range calving areas, fawning areas) crossed by the proposed route and agency preferred routes have been identified from a variety of sources (CDOW 1990b; BLM 1984a, 1984b, 1985, 1987a, 1987b, 1988; BLM 1990 files; New Mexico Game and Fish 1991). Tables 2-4 and 2-9 summarize the miles of key big game ranges crossed by each pipeline route.

Elk occur mainly in high- to mid-elevation conifer, meadow, mountain shrub, and pinyon-juniper habitats. Mountain shrub, pinyon-juniper, and lower conifer are the most common habitats utilized by elk as winter ranges. Mule deer occur in all habitats that would be crossed by the proposed and agency preferred routes. Mountain shrub, pinyon-juniper, and sagebrush are utilized as winter ranges. Antelope occur in saltbush habitats along the Gunnison River between Grand Junction and Delta and in saltbush and sagebrush habitat in the Disappointment Valley and Dry Creek Basin. No pipeline routes would cross bighorn sheep range; however, bighorn range does occur in nearby areas.

Black bears are most common in conifer, mountain shrub, and pinyon-juniper habitats. No key black bear ranges have been identified in the areas that would be crossed by the pipeline routes. Mountain lions are dispersed mainly through conifer, mountain shrub, and pinyon-juniper habitats. Higher mountain lion population densities are often associated with big game concentration areas. No key mountain lion ranges have been identified in the areas that would be crossed by the proposed and agency preferred routes. However, the Menefee Mountain, Mancos Hill area has one of the highest mountain lion densities in Colorado (Skiba 1991).

Small Game

The cottontail rabbit, red squirrel, and Abert's squirrel are common small game mammals in the area. Furbearers include the beaver, muskrat, mink, pine marten, bobcat, and coyote.

Upland game birds in the area include the turkey, blue grouse, sage grouse, ring-necked pheasant, mourning dove, and band-tailed pigeon. Sage grouse leks and nesting areas that would be crossed by the proposed route and agency preferred route are tabulated in Tables 2-4 and 2-9 (CDOW 1990b; BLM files 1990).

Numerous species of waterfowl nest, winter, and migrate through the region. Common nesting species include the Canada goose and mallard. Canada goose nesting platforms occur along the pipeline routes at the Colorado and Gunnison River crossings (Clark 1990). Riparian areas, wetlands, ponds, and reservoirs are the most important habitats for nesting, migrating, and wintering waterfowl.

Nongame

Many nongame species (nongame birds, reptiles, and amphibians) occur in the different habitats that would be crossed by the pipeline routes. High-interest species include the great blue heron and other waterbirds and raptors. The proposed and agency preferred routes would pass near great blue heron rookeries at the Colorado and Gunnison River crossings (Clark 1990; Rose 1990). Riparian areas and wetlands are the most important habitats for waterbirds.

A nesting raptor survey completed during the spring of 1991 revealed the golden eagle as the only non-endangered raptor species currently nesting within 1 mile of the proposed route and

agency preferred route (note: a raptor survey was not completed for the Redvale and Mancos Valley East Variations) (ENSR 1991a). Subsequent to this survey, a red-tail hawk nest was found within 1 mile of the agency preferred route near the La Plata River crossing. Additional surveys conducted on new route variations will occur during the spring of 1992. Species that could nest within the corridor include red-tailed hawks, Swainson's hawks, Cooper's hawks, prairie falcons, and goshawks.

Common amphibians occurring in the project area include the tiger salamander and northern leopard frog (Hammerson 1982). Amphibians are dependent on riparian and other wetland areas. Common reptiles occurring in the project area include the short-horned lizard, the eastern fence lizard, the bullsnake, the western terrestrial garter snake, and the western rattlesnake.

FISHERIES

The proposed route and agency preferred route would cross perennial streams in Colorado and New Mexico (see Appendix C, Tables C-1 and C-2). No lakes would be crossed by either route. Flowing waters in western Colorado and New Mexico consist of cold water mountain streams and warm water streams and rivers at lower elevations. Most of the streams that would be crossed are relatively small with widths less than 50 feet. Crossings would occur at the following moderate and large-sized rivers: Colorado, Gunnison, San Miguel, Dolores, La Plata, Animas, and Mancos. Descriptions of the various drainages and streams within the study area are provided in Appendix C.

Fish communities in the streams are comprised of trout, minnows, suckers, catfishes, sunfishes, sculpins, and killifishes. The number of fish species known to occur in the streams ranges from 2 to 21 (CDOW 1990a). In general, most of the mountain streams support 2 to 8 species. The most diverse fish communities are found in the larger rivers, such as the Gunnison and Colorado, with 14 and 21 species, respectively. Important recreational fish species occurring in the Class 1 and Class 2 cold water streams include rainbow trout, cutthroat trout, brown trout, and brook trout. Limited trout fisheries are known to occur in the Colorado River, Gunnison River, Animas River, and the La Plata River, where crossed by the proposed and agency preferred pipeline routes. The San Miguel River, Dolores River, and forks of the Mancos River are known to support good trout fisheries. The only recreationally important warm water species are catfishes and sunfishes, which are known to occur in the Colorado River, Gunnison River, and Roubideau Creek. Small perennial streams (not ranked as Class I or Class 2 cold water fisheries) also have native non-game fisheries.

In accordance with the New Mexico Water Quality Classification Standards, streams would be considered important if they contain recreational or native species, or threatened or endangered species. The majority of the streams that would be crossed in New Mexico are intermittent and do not contain important fish species on a permanent basis. The Animas River and upper La Plata Rivers support a limited trout fishery in New Mexico.

Benthic macroinvertebrates represent another important aquatic community in streams that would be crossed by the proposed and agency preferred routes. The type of benthic macroinvertebrates occurring in the streams depends mainly on the type of substrate, stream velocities, depths, temperature, and other chemical characteristics. In general, the small mountain streams are dominated by mayfly, stonefly, blackfly, midge, and caddisfly larvae that prefer gravel to boulder substrates. Macroinvertebrate communities in small to large-sized streams at lower elevations usually are comprised of more silt- and temperature-tolerant

groups, such as midge, caddisfly, dragonfly, damselfly larvae, as well as beetles and worms. The midge and caddisfly species are usually different from those found in mountain streams. Production in the streams is quite variable, depending on the habitat conditions, but the highest numbers usually are found in the larger, warm water streams.

THREATENED AND ENDANGERED SPECIES

Based upon the list provided by the U.S. Fish and Wildlife Service (USFWS 1991), the proposed pipeline crosses potential habitat for 4 Federally listed terrestrial species, 3 Federally listed fish, 8 Federally listed plants, 2 species proposed for listing, and 20 species that are Category 1 or 2 candidates for listing. These species, as well as state-listed and sensitive species and USFS sensitive species potentially present in the pipeline corridor, are presented in Appendix Table E-1 (BLM 1990 files; Colorado Natural Areas Program 1990; Navajo Natural Heritage Program 1990; New Mexico Game and Fish 1992; New Mexico Natural Heritage Program 1991).

BLM policy requires protection of state-listed species equal to that provided for Federally listed species. Colorado does not have legally protected plants as does New Mexico, but both states maintain lists of animals protected under state law as threatened or endangered. All but six state-listed species (five animals and one plant) are either Federally listed, proposed for Federal listing, or are candidates for Federal listing. Of these six, only the river otter, listed as endangered in Colorado, is currently known to exist in habitats crossed by the proposed route. A draft Biological Assessment (BA) has been prepared (ENSR 1992) summarizing the status and location of threatened, endangered, proposed and candidate species identified by the USFWS (USFWS 1991) as potentially occurring along the agency preferred route. The draft BA also included the results of all inventories for this same group of species that have been completed along the agency preferred and most of the proposed route. The USFWS has developed a draft biological opinion (BO) based on the draft BA. The draft BO is included in Appendix E. The draft BA is available for review in the BLM Montrose District office.

Additional field surveys (Mexican spotted owl, plants, black-footed ferret) will be completed during the spring and summer of 1992. A final BA and final USFWS BO will be prepared once the inventories are completed. If the impacts in the final BA and final BO are different than those discussed in this final EIS, additional environmental analysis may be required to disclose the differences in impacts. Any additional environmental analysis will be included in the BLM and USFS RODs.

The BLM and USFS will not make a decision regarding the project and no RODs or ROW grant will be issued until the final USFWS BO is received. The final BO will be included in the BLM and USFS RODs.

Animals

Available information and inventories completed in support of this proposal indicate that only the bald eagle, Mexican spotted owl, black-footed ferret, southwestern willow flycatcher, river otter, Colorado River squawfish, humpback chub, and razorback sucker, roundtail chub, and flannelmouth sucker are known to occur or have a high probability of occurring along the proposed and agency preferred routes.

One bald eagle roost is known to occur adjacent to the proposed and agency preferred routes along the La Plata River. Additional roosts occur within 1 mile of the project area. One bald eagle nest is known to exist north of Mancos approximately 0.8 mile from the proposed route. No bald eagle nests occur near the agency preferred route (ENSR 1992).

Although black-footed ferrets have not been found in Colorado or New Mexico in recent years, prairie dog colonies, providing suitable habitat, have been found along the proposed routes. Initial field clearances conducted during the winter of 1992 have not found any sign of this species. All surveys have been conducted according to USFWS guidelines by certified biologists. No surveys have been conducted along the final EIS agency preferred route in the Norwood area. Prairie dog colonies along this route segment will be mapped and if black-footed surveys are needed, they will be completed during the summer of 1992. Prairie dog surveys have not been conducted on the proposed route between Redvale and the Montezuma-Dolores county line. This segment is known to contain significant prairie dog colonies. The results of these surveys will be evaluated in the final BO.

Mexican spotted owls are a resident species in New Mexico and southern Colorado. Suitable habitats along the proposed and agency preferred routes were mapped and surveyed during the summer of 1991. Potential spotted owl habitat was located only in Colorado. Spotted owls were heard calling at two locations. One location is on the proposed route north of Dolores (Dolores County, Colorado); the second location is on both the proposed and agency preferred routes south of Mancos Hill in La Plata County, Colorado. All potential Mexican spotted owl habitat crossed by the proposed and agency preferred routes has been mapped (ENSR 1991b, 1992). No spotted owl surveys have been completed along the final EIS agency preferred route in the Norwood area. Spotted owl surveys will be completed in all potential habitat crossed by the agency preferred route during the spring and summer of 1992. The results of those surveys will be addressed in the final BA.

River otters (endangered in Colorado) are known to exist in the Gunnison and Dolores Rivers. The proposed Gunnison River crossing is not in an area where otter use has been documented, and is not considered important otter habitat. River otters have been observed in the vicinity of the Dolores River crossing.

The Colorado River squawfish, humpback chub, and razorback sucker are known to occur in the Colorado River. The razorback sucker and the Colorado River squawfish are known to occur in the Gunnison River below Delta. The roundtail chub and flannelmouth sucker occur in the Colorado River, Gunnison River, Animas River, and La Plata River.

The southwestern willow flycatcher could occur in shrub-dominated riparian areas crossed by the proposed and agency preferred routes in southwestern Colorado and northern New Mexico. For example, potential habitat occurs along the La Plata River. Preferred habitat for the southwestern willow flycatcher includes riparian willow stands and other riparian shrub communities without a major tree canopy (Sedgwick 1992).

Plants

Plant surveys were completed by the USFWS along segments of proposed and agency preferred routes identified as containing potential habitat (Anderson 1991). Results of these surveys summarized in the draft BA (ENSR 1992) indicate that populations of 37 Uinta Basin hookless cactus and 2,150 DeBeque milkvetch occur along the proposed and agency preferred route. In the ROW, 20 individuals of Uinta Basin hookless

cactus and 350 individuals of Debeque milkvetch were located. Other sensitive plant species were located along the original proposed and preferred routes as identified in the draft EIS; however, those populations will be avoided via route realignment (ENSR 1992). Since completion of the plant survey (Anderson 1991), additional modifications (31.3 miles of potential rare plant habitat) to the final EIS agency preferred route have been made. These areas were not included in the original plant surveys. These areas will be surveyed during the spring/summer of 1992. The results of these surveys will be addressed in the final BA.

CULTURAL RESOURCES

Western Colorado and northwestern New Mexico have been occupied sporadically for nearly 12,000 years. Native American occupation includes Paleoindian (10,000-5500 B.C.), Archaic (5500 B.C.-A.D. 0), Formative (Anasazi and Fremont A.D. 0-1300), and the Protohistoric (Ute and Navajo) and Historic periods (A.D. 1300-ca. 1850). The Ute and Navajo occupy the area today.

Historically, the Spanish were the first to penetrate the region in the 1700s, followed by fur trappers, government expeditions, and gold seekers in the 1800s. Ten years after the initial gold strike along the Front Range, southwestern Colorado experienced the same influx of treasure seekers in the area of the newly established Southern Ute Reservation. Passage in 1874 of the Brunot Treaty opened millions of acres for settlement and mineral development (O'Rourke 1980). Subsequent conflict with the Utes culminated in the Meeker Massacre in 1879, and by 1881 the Utes were reservation-bound in southwestern Colorado and eastern Utah (Chandler et al. 1991). Detailed information regarding the cultural overview can be found in Husband (1984) and O'Rourke (1980).

Class I Inventory

A Class I inventory (literature search) (Chandler et al. 1991) was conducted for cultural resources present within the 75-foot-wide right-of-way (ROW) traversed by the proposed and draft EIS agency preferred routes, as well as within a 0.5-mile-wide study area on each side of the route center lines. It must be noted that Class I research results are a direct reflection of the size, distribution, and level of intensity of previous cultural resource investigations.

A Class I inventory was also conducted for the final EIS agency preferred route. As shown in Figure 2-1 and 2-2, the only place where the routes (proposed route and final EIS agency preferred route) differ is in the Norwood and Mancos Valley areas.

Table 3-7 compares the routes in the Norwood area using Class I (literature search) information. The comparison is from approximately the San Miguel River to the Montezuma County line. Table 3-8 compares the routes in the Mancos Valley area using Class I (literature search) information. The comparison is from approximately Stoner to Mancos Hill.

Class III Inventory

A Class III (pedestrian) inventory has been completed on approximately 72 percent of the final EIS agency preferred route. Access roads and compressor stations along the final EIS agency preferred route have also been inventoried for a total of 5,210 acres. A total of 240 cultural resource sites and 266 isolated finds were recorded along the final agency preferred route. Represented in the 240 sites are 269 archaeological components, including aboriginal (181 components), Hispanic (9), and Euro-American (79). Aboriginal components are divided into groups of 2 possible Paleoindian, 25 Archaic, 40 Anasazi, 8 non-Anasazi Formative,

TABLE 3-7

TransColorado Gas Transmission Project
Comparison Using Class I Inventory Data
Norwood Area

	Proposed Route	Draft Agency Preferred Route	Final Agency Preferred Route
Recorded sites within 1-mile-wide corridor	27	41	42
Recorded sites within 75-foot-wide corridor	7	3	3
Potentially eligible NRHP sites within 1-mile-wide corridor[1]	13	32	32
Potentially eligible NRHP sites within 75-foot-wide corridor[1]	3	0	3
Eligible NRHP sites within 1-mile-wide corridor[2]	5	0	1
Eligible NRHP sites within 75-foot-wide corridor[2]	2	0	0
Presence/absence of Quaternary soil deposits[3]	(+)	(+)	(+)
Miles of high sensitivity areas within 75-foot-wide corridor[4]	42	20	28
Miles of medium sensitivity areas within 75-foot-wide corridor[4]	8	0	0

[1]Sites that may (1) appear to the field recorder as eligible, (2) be in need of further data to determine their significance, or (3) be unevaluated for eligibility.

[2]Sites that are officially eligible for or are listed on the NRHP.

[3]Indicates potential for buried cultural resources.

[4]The sensitivity evaluation is based on the density of recorded sites within a study area, and the physical attributes of the region for supporting prehistoric and historic communities. These attributes include availability of reliable water supplies, travel routes, arable land, and natural sources of vegetable and animal foods.

TABLE 3-8

TransColorado Gas Transmission Project
Comparison Using Class I Inventory Data
Mancos Valley Area

	Proposed Route	Draft Agency Preferred Route	Final Agency Preferred Route
Recorded sites within 1-mile-wide corridor	32	27	24
Recorded sites within 75-foot-wide corridor	3	13	4
Potentially eligible NRHP sites within 1-mile-wide corridor[1]	21	9	5
Potentially eligible NRHP sites within 75-foot-wide corridor[1]	2	4	0
Eligible NRHP sites within 1-mile-wide corridor[2]	4	3	5
Eligible NRHP sites within 75-foot-wide corridor[2]	1	1	3
Presence/absence of Quaternary soil deposits[3]	(-)	(-)	(-)
Miles of high sensitivity areas within 75-foot-wide corridor[4]	18	9	4
Miles of medium sensitivity areas within 75-foot-wide corridor[4]	13	12	20

[1]Sites that may (1) appear to the field recorder as eligible, (2) be in need of further data to determine their significance, or (3) be unevaluated for eligibility.

[2]Sites that are officially eligible for or are listed on the NRHP.

[3]Indicates potential for buried cultural resources.

[4]The sensitivity evaluation is based on the density of recorded sites within a study area, and the physical attributes of the region for supporting prehistoric and historic communities. These attributes include availability of reliable water supplies, travel routes, arable land, and natural sources of vegetable and animal foods.

13 Ute, and 3 Navajo. Ninety aboriginal components are of unknown affiliation.

Within the 200-foot inventoried corridor, no sites are officially listed on the National Register of Historic Places (NRHP). A total of 84 sites have been determined to be eligible (Reed and Horn 1992). These figures will increase slightly when the inventories are completed in 1992.

Inventoried prehistoric sites are characterized by sherd and lithic scatters, long-term residences, and rockshelters, while historic Native American sites are represented by a wickiup and lithic and sherd scatters. Aspen art sites denote Hispanic activity in the area. Euro-American sites are represented by structures (habitations, barns, dugouts, store complexes, sawmills, brick kilns), work camps, sheepherder's camps, gas and oil drilling facilities, rockshelters, roads and trails, railroads, trash dumps, aspen and rock art, burials, and water control systems (Reed and Horn 1992).

Routes could not be compared in the Norwood and Mancos Valley areas because the Class III inventories have not been completed through these areas.

A proposed cultural resource treatment plan has been prepared for cultural resources based on the incomplete inventory of the final EIS agency preferred route. The proposed treatment plan has been submitted to the Colorado and New Mexico State Historic Preservation Officers (SHPOs) and the Advisory Council on Historic Preservation (ACHP). Both SHPOs and the ACHP agree with the philosophy in the treatment plan and request they be kept involved in the treatment and research design of the cultural resource sites. This includes involvement in the treatment and research design of any new cultural resource sites discovered as a result of remaining inventories along the final EIS agency preferred route. The SHPO and ACHP letters are included in Appendix F of this final EIS.

The Class III inventory for the final EIS agency preferred route will be completed in summer 1992. New information about cultural resources will be incorporated into the research design, specific to the area, and the final cultural resource treatment plan. The research design and final treatment plan will be submitted to the New Mexico and Colorado SHPOs, ACHP, and FERC for review and concurrence. If the approved treatment plan for cultural resources in different than that described in this final EIS, additional environmental analysis may be required to disclose the differences in impacts. Any additional environmental analysis will be included in the BLM and USFS RODs.

The BLM and USFS will not make a decision regarding the project and no RODs or ROW grant will be issued until the SHPOs, ACHP, and FERC concur with the final treatment plan. The final SHPO concurrence will be included in the BLM and USFS RODs.

Native American Religious Concerns

Native American groups commonly do not wish to disclose to the public the locations of traditional use areas and sacred sites. Specific information on traditional use and sacred sites on or near the proposed route continues to be solicited, and any information obtained will remain confidential. Contacts have been made with four Chapter Houses within the Navajo Tribe, the Southern and Ute Mountain Utes, Northern Ute, Hopi, and Zuni Tribes. Interviews with four Navajo individuals determined that the southern portion of the

proposed route would not impact any areas deemed sacred to the Navajos (Martin 1992). The Hopi have expressed some concern and wish to negotiate a Memorandum of Understanding concerning treatment and reinterment of human remains. The BLM will continue to coordinate efforts with the Ute, Navajo, Zuni, and Hopi tribes and assure protection of any sacred sites and human remains discovered. Currently there are no known sites of national or regional significance, within project boundaries, although areas of local importance may be present (Chandler 1991).

PALEONTOLOGICAL RESOURCES

Geological outcroppings in the Uinta, Wasatch, Morrison, and Animas Formations along the draft EIS agency preferred route have been either inventoried or studied for paleontological resources. The sections of final agency preferred route (in the Norwood and Mancos areas) will be inventoried during summer 1992. Of the 25.1 miles of Uinta Formation surveyed, no fossils of any form were found. Fossils were discovered in 19 localities in the Wasatch, Morrison, and Animas Formations.

Wasatch Formation

A total of 14.6 miles of the Wasatch Formation was surveyed, yielding 15 localities. Of the 15 localities, 2 were determined to be of Class I scientific significance, 8 were determined to be of Class II significance, and 5 were determined to be Class III significance.

One of the localities determined to be of Class I significance is famous and has been worked since the 1930s by the Chicago Field Museum of Natural History, the University of Colorado Museum in Boulder, and the Museum of Western Colorado in Grand Junction. The other Class I locality, which was found just outside the project corridor, is a scientific, previously undiscovered locality on BLM land. Both of the Class I localities have yielded significant and rare mammal specimens in relative abundance.

Morrison Formation

A total of 5 miles of Morrison Formation was surveyed, yielding 1 Class II locality. A dinosaur bone was discovered in an already bulldozed access road to the existing pipeline corridor.

Animas Formation

In New Mexico, two Class III localities within the Animas Formation revealed turtle shell fragments.

Significance Criteria

The significance of the 19 localities was determined using the following BLM criteria:

Class I. Critical - reference locality for holotype or critical paleontological material, or any type section or geological strata needed for future study.

Class II. Significant - any locality that produces rare, well-preserved, or critical fossils usable for taxonomic, evolutionary, stratigraphic, paleoenvironmental, or paleontological studies.

Class III. Important - any locality that produces common, abundant fossils useful for stratigraphic or population variability studies.

Class IV. Insignificant - any locality with poorly preserved, common, or stratigraphically unimportant fossil material.

Class V. Unimportant - any locality intensively surveyed and determined to be of minimal scientific interest.

VISUAL RESOURCES

The BLM and USFS assign visual resource management (VRM) classifications to Federal lands under their management. The classifications are based on a number of factors, such as the visual resource values present and the management goals for the lands within the classification. The classifications are used as very important guidelines to follow, but they are not absolute requirements.

The BLM and USFS VRM classification systems were used to classify areas where highly scenic landscapes are visible, public access is available, or public sensitivity for landscape values is known to be high. These areas are listed in Table 3-9. To have a common basis to evaluate and compare all routes, it was necessary to classify all lands regardless of ownership (Federal, private, or Indian). It should be noted, however, that although BLM and USFS classifications were assigned to private and Indian lands for comparison purposes, the classifications have no management implications on private and Indian lands.

As shown in Table 3-9, this area contains a number of major highways and secondary roads and trails, as well as numerous communities and scattered rural residences. Three highways in the study area have been designated as state scenic byways. Colorado State Highways 145 and 160 in the study area jointly have been designated a Federal and state scenic byway, called the San Juan Skyway. Another scenic byway crossed is the Unaweep/Tabeguache Scenic and Historic Byway. In areas where highly scenic landscapes are visible, where there is adequate public access, or where public sensitivity for landscape values is known to be high, higher visual management standards have been designated.

Distances for high and moderate visual contrast along the proposed and agency preferred routes are listed in Tables 2-4 and 2-9, respectively. Appendix G explains and compares the BLM and USFS VRM classification systems.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

The proposed route would travel near the Dudley Bluffs Area of Critical Environmental Concern Research Natural Area (ACEC-RNA); the route does not intersect with this area. The ACEC is located along Piceance Creek within the Piceance Basin in the White River Resource Area (RA). The Dudley Bluffs ACEC has been designated by the BLM due to sensitive plant species and remnant vegetation communities located in the bluff area (Roberts 1991).

TRANSPORTATION

The western region of Colorado and northwestern New Mexico's San Juan County are generally rural in character, with the exception of five small to mid-sized urban areas. Roadway systems in the area link small communities and facilitate travel to the larger communities and retail and recreation centers of Grand Junction, Montrose, Durango, Cortez, and Farmington.

U.S. Interstate 70 (I-70) and U.S. Highway 50 are the two primary east-west arterials linking this region to central Utah and the western states, as well as to Denver, southern Colorado, and the eastern United States. The majority of I-70 is a four- to six-lane interstate. U.S. Highway 50 is a two-lane roadway from Grand Junction to Delta and a four-lane highway from Delta to Montrose.

TABLE 3-9

TransColorado Gas Transmission Project
Summary of Sensitive Observation Points/Visual Management Classifications within the Study Area

Area	VRM/VQO[1] Designation	Viewpoints	Landscape Conditions
Piceance Creek	II	County road	Narrow agricultural valley
Roan Cliffs	II	County road & rural residences	2,000' escarpment
Big Salt Wash	III	Recreation road & rural residences	Narrow valley in Book Cliffs
Roan Creek Drainage	III	County road & rural residences	Narrow agricultural valley
DeBeque	III	I-70 & rural residences	Open agricultural valley, Colorado River
Sand Wash (near Black Mountain)	III	County road & rural residences	Pinyon-juniper foothills
Indian Peak	II	County road	Unique rock formations
Plateau Creek	III	State Hwy. 65 & rural residences	Narrow creek valley
Grand Mesa	III	Major highway & urban viewpoints in Grand Valley	Steep pinyon-juniper slopes
Clifton	III	I-70, Hwy. 50, many residences	Orchards, urban fringe, Colorado River
Kannah Creek	III	County road & rural residences	Narrow Creek valley
Adobes (north of Delta)	III	Highway 50	Badland character
Roubideau Creek	II	Rural residences	Deep (150-200'), narrow drainage
Uncompahgre Plateau Footslopes	III	BLM & USFS access road & rural residences	Arid ridge-drainage complex
Uncompahgre Plateau	PR	USFS access road	Forested mountain slopes

TABLE 3-9 (CONTINUED)

Area	VRM/VQO[1] Designation	Viewpoints	Landscape Conditions
San Miguel Canyon	II	State Hwy. 145 & USFS/BLM access roads	Deep (800-1000') river canyon
Redvale	III	Redvale, State Hwy. 145	Mesa, minor canyon
Dry Creek Basin & Disappointment Valley	III	State Hwy. 141 & BLM access roads	Arid basin w/pinyon-juniper divides
Glade Mountain	PR	USFS access roads	Pinyon & ponderosa slopes
Norwood	III	Norwood, Hwy. 145, county roads & rural residences	Agricultural mesa
South of Norwood-Belmear Mountain	III	BLM access road & rural residences	Steep to rolling pine, oak, meadow land
Beaver Creek/Boggy Draw (north of Dolores)	R & PR	Various USFS access roads	Rolling pine woodland
Dolores River Canyon	III & R	Dolores, State Hwy. 145 (scenic byway) & rural residences	Moderately deep (400-800') river canyon crossings
Haycamp Mesa	PR	Various USFS access roads	Rolling pine woodland
Rampart Hills	R	Jackson Gulch Reservoir & USFS access roads	Steep pine woodland
Weber Reservoir-East Mancos River	PR	Various USFS access roads	Pine-oak woodland
Upper Mancos Valley	PR & III	Rural residences, State Hwy. 184 & county roads	Primarily pine woodland
Lower Mancos Valley	R & II	Numerous residences, Mancos, State Hwy. 160 (scenic byway), State Hwy. 184 & county roads	Pine woodland agricultural mosaic

TABLE 3-9 (CONTINUED)

Area	VRM/VQO[1] Designation	Viewpoints	Landscape Conditions
Totten Reservoir	III	State Hwy. 160 (scenic byway) & rural residences	Agricultural valley w/pinyon foothills
Upper Thompson Park	II	State Hwy. 160 (scenic byway), rural residences & county road	Pinyon-oak brush foothills, agricultural valley
Lower Thompson Park	III	Rural residences & county road	Steep pine slopes, narrow valley
Hesperus West	R & II	State Hwy. 160 (scenic byway) & rural residences	Open pine-oak woodland
Animas River (near Durango)	III	U.S. Hwy. 550, county roads & rural residences	Pinyon-juniper, river bluffs, agriculture, Animas River
Redmesa	III	State Hwy. 140 & rural residences	LaPlata River Valley, agriculture riparian
La Plata-Aztec, New Mexico	III	BLM access roads, oil field roads, U.S. Hwy. 550 & nearby residences	Rolling pinyon-juniper & sage hills
Northeast of Shiprock	III	Rural residence	Open sagebrush
Waterflow	II	U.S. Hwy. 550, rural residences & county roads	Open sagebrush

[1]See Appendix G, pages G-1 and G-2 for definition of VRM/VQO designations.

Western Colorado and northwestern New Mexico are further accessed by the north-south traveling U.S. Highways 550 and 666. U.S. 550 connects Montrose and Farmington via the heavily traveled "Million Dollar Highway." U.S. 666 connects Cortez with Gallup, New Mexico, via the town of Shiprock. Colorado State Highways 145 and 160, as well as several other highways and a network of county and private roads, complete the transportation infrastructure of this region.

The railroad network in this region consists of national rail hubs at Salt Lake City, Utah, and Denver, Colorado. These hubs are linked by the Rio Grande Southern Pacific Railroad network. This railroad enters Colorado on its western border at Grand Junction and continues along the I-70 corridor to the Denver hub. A railroad spur travels from Grand Junction to Delta with a branch line terminating at Montrose. Officials at the Rio Grande Southern Pacific Railroad have indicated that the lines proposed for use by TransColorado are operating at 50 percent capacity and could readily accommodate the needs of the TransColorado project (Smith 1991). The Sante Fe Railway serves the southwestern United States, with a hub in Albuquerque and access to Gallup, New Mexico.

Air travel in this region is provided by commercial carrier to Grand Junction, Montrose, Cortez, Durango, and Farmington. Several smaller air strips in the region can also accommodate private or chartered carriers.

Table 3-10 indicates all state and Federal highways proposed to be utilized as haul roads during construction.

SOLID AND HAZARDOUS WASTES

The proposed route and agency preferred route do not cross any hazardous waste sites (EPA 1990a, 1990b). However, the routes travel approximately 0.10 mile from the Cheney disposal site in the vicinity of MP 90.0. The disposal site is a repository for radioactive tailings from a uranium processing mill in Grand Junction, Colorado (Leske 1990). The Cheney disposal site is part of the Uranium Mine Tailings Remedial Action Project (UMTRAP) being conducted by the U.S. Department of Energy (DOE) (Table 1-2).

According to Woodward-Clyde Consultants (WCC) (1990), the CDOW stream and lake databanks were searched for information on locations of known or suspected toxic sediments. This search revealed only one location crossed by the TransColorado pipeline with known pollutants in the sediments. This crossing is located on the San Miguel River at MP 153.7 on the proposed route. Information in the stream databank is not specific, but it lists mining operations as a source of the sediment contamination. Studies of mining-related pollution are currently being conducted on the Dolores River by BuRec. Several areas crossed by the pipeline have a long history of mining operations, and pollutants in sediments could potentially occur at other locations.

Licensed solid waste landfilling facilities have been identified in all potentially affected counties. Landfills are typically controlled by the county and accept non-hazardous wastes for a tipping fee.

SOCIOECONOMIC CONDITIONS

Population

Two counties, Mesa County in Colorado and San Juan County in New Mexico, have populations above 50,000. Dolores, Rio Blanco, and San Miguel Counties have 1989 populations estimated below 6,000. The remaining counties range between these high and low estimates. Larger urban areas along the proposed route and

TABLE 3-10

TransColorado Gas Transmission Project
State and Federal Haul Routes

State	Road Number	Segment	Projected Hauling Use[1]
Colorado	I-70	Rifle, CO to UT/CO border	Moderate
	U.S.-50	Grand Junction, CO to Montrose, CO	Moderate
	U.S.-50	Montrose, CO to Ridgeway, CO	Light
	U.S.-160	Cortez, CO to Junction with CO 172	Light
	U.S.-550	Durango to NM/CO border	Light
	U.S.-666	UT/CO border to NM/CO border	Moderate
	CO-13	Rio Blanco to Rifle, CO	Light
	CO-62	Ridgeway, CO to Placerville, CO	Light
	CO-65	Junction I-70 to Mesa, CO	Light
	CO-90	Montrose, CO to Junction with CO 141	Light
	CO-140	Hesperus, CO to NM border	Light
	CO-141	Whitewater, CO to Dove Creek, CO	Light
	CO-145	Junction CO 141 to Cortez, CO	Light
	CO-146	Clifton, CO to Junction U.S.-50	Light
	CO-184	Lewis, CO to Mancos, CO	Light
	CO-348	Delta, CO to Olathe, CO	Light
	U.S.-6/24	I-70 Junction to I-70 Junction	Light
New Mexico	U.S.-64	Farmington, NM to Bloomfield, NM	Light
	U.S.-550	Shiprock, NM to CO/NM border	Moderate
	U.S.-666	CO/NM border to Gallup, NM	Moderate
	NM-44	Bloomfield, NM to Aztec, NM	Light
	NM-170	Farmington, NM to CO/NM border	Light
	NM-173	La Plata, NM to Aztec, NM	Light
Utah	I-70	UT/CO border to Crescent Junction, UT	Moderate
	U.S.-191	Crescent Junction, UT to Monticello, UT	Moderate
	U.S.-666	Monticello, UT to CO/UT border	Moderate

[1]Number of trips.

Hauling Use Daily
0 - 10 = light
11 - 25 = Moderate
25 - 50 = Heavy

Source: TransColorado 1991

agency preferred routes include Durango with a 1989 population estimate of 12,836, Grand Junction with 32,346, Montrose with 10,530, and Farmington with 33,656 (1990 estimate - Colorado Division of Local Government 1990-1991).

Population density statistics indicate that all 10 counties are considered rural counties. Densities range from a high of 26.9 persons per square mile in Mesa County and a low of 1.5 persons per square mile in Dolores County (Bureau of the Census 1988).

Employment

The employment and income data for the project area illustrate that Mesa, La Plata, Garfield, and Montrose Counties in Colorado and San Juan County in New Mexico have the largest labor forces of the 10-county study area. Employment data show a historical trend of a declining labor force and employment, with increasing unemployment between 1985 and 1987. Increasing labor force and employment coupled with declining unemployment rates occurred generally between 1987 and 1989. Several exceptions to this trend were Delta, Montezuma, and Rio Blanco Counties, with a steadily declining labor force and employment, and San Miguel County with a steadily increasing labor force and employment for the same period (Colorado Division of Local Government 1990-1991))

Fiscal Conditions

Table 3-11 summarizes fiscal conditions in the potentially impacted counties. Total assessed valuation over the 5-year period indicates fluctuating county property values for each of the 10 counties. Garfield, Montrose, San Miguel, Montezuma, and La Plata Counties reported a net increase of assessed valuation over the 5-year period from 1985 to 1989. Conversely, Rio Blanco, Dolores, Delta, and Mesa Counties in Colorado and San Juan County in New Mexico have reported net decreases for the same period.

The states of Colorado and New Mexico assess the value of gas transportation pipelines to facilitate the consistent valuation of pipelines that cross several counties. Employing a cost approach, pipelines are assessed and value assigned to affected counties and taxing jurisdictions. Taxes are then levied based on assessed valuation.

Property and sales taxes also varied over the 5-year period, but generally increased with the exception of Rio Blanco, Dolores, and Delta Counties. Montezuma County and Montrose County collect no sales tax.

County revenues and expenditures, included on Table 3-11, are an indication of county operating conditions. The data indicate that during the 5-year history, only Montezuma County did not operate in deficit. For the remaining counties, expenditures exceeded revenues 2 to 4 years during the 5-year period.

A portion of gas produced from the San Juan natural gas basin occurs on lands under the jurisdiction of representative Indian Tribal councils. During the scoping process for the TransColorado Gas Transmission Project, the Southern Ute Indian Tribe made claim that export pipeline capacities from the San Juan Basin to western and southwestern markets were currently being exceeded and that the implementation of the TransColorado proposal would increase this capacity shortfall.

Natural gas production on the Southern Ute Indian Reservation is operated by oil and gas companies, such as Texaco, Arco, Meridian, and to a large extent, Amoco. This gas is produced for shipment along the Ignacio, Colorado/ Bloomfield, New Mexico pipeline corridor to be transported from the region by El Paso Natural

TABLE 3-11

TransColorado Gas Transmission Project
1989 County Government Statistics

County	Total Assessed Valuation (Thousands $)	State-Assessed Property Gas Transportation Pipelines (Thousands $)	Average Mill Levy	Property Tax Collected (Thousands $)	Sales Tax Collected (Thousands $)	County Revenues (Thousands $)	County Expenditure (Thousands $)	Surplus (Deficit)
Rio Blanco	277,690	16,714	70.6	13,951	190	9,017	7,399	1,618
Garfield	280,997	5,435	70	19,325	647	12,106	11,671	435
Mesa	426,183	4,230	85	11,209	7,814	49,631	47,440	2,191
Montrose	143,770	1,477	76	10,324	No county sales tax	11,292	11,673	(381)
Delta	86,340	15	80	7,451	1,386	9,776	9,590	186
Dolores	17,209	1,196	84	N/A	38	1,703	1,637	66
San Miguel	100,356	395	64	1,118	369	5,938	4,782	1,156
Montezuma	163,743	7,669	65	12,046	No county sales tax	8,554	7,786	758
La Plata	367,289	27,474	52	21,328	4,039	15,736	15,361	375
San Juan	1,475,288	---	25	29,649	4,236	23,066	21,788	1,278

Source: State Agencies, State Data Centers, County Assessors, Treasurers and Commissioners. 1990.

Gas or, if constructed, the proposed TransWestern pipelines.

The Southern Ute Tribe receives royalties (12 to 25 percent of market value) and taxes (6.5 percent severance tax) on the gas produced on the reservation. The Tribe claims that 90 percent of Tribal revenue is generated by natural gas production (Cook 1991). The Tribe estimates that by 1993, wells on its reservation will produce approximately 30 million cubic feet of natural gas per day (MMcfd), or an average of 10.95 billion cubic feet (Bcf) per year (Bruner 1991).

Public Services

A wide range of public services and facilities is offered in the 10-county study area. Larger, urbanized areas with adequate tax bases and populations are able to offer full-service law enforcement and fire districts, hospitals, emergency response service, water and sewer services, road and bridge departments, solid waste disposal, recreation programs, library systems, zoning ordinances, land use planning, and social services. Rural communities, however, often do not generate the revenue necessary to support such services. Frequently, residents in rural areas must travel to urbanized areas to utilize health care, governmental, and recreational services and facilities. In some cases, rural communities have established special taxing districts to fund desired services, such as fire protection, water treatment and supply, sewer services, and medical care facilities. Indian Tribal governments and the Bureau of Indian Affairs (BIA) also provide services to reservation and Tribal members.

Housing

Housing availability in the 10-county study area is illustrated in Tables 3-12 and 3-13. Table 3-12 indicates the most recent available data on total housing units and vacancy rates among these units. The vacancy rates describe rates for the entire inventory of rentals and owner-occupied housing. Table 3-13 describes the temporary housing stock in the communities along the proposed route and agency preferred route.

The TransColorado Proposed Pipeline Project would require three construction crews (or spreads) during the building phase of the project. It is likely that the majority of workers would choose to reside in temporary housing, such as motels/hotels, or in mobile home and recreational vehicle areas. Rental or purchase of single-family homes, condominiums, or apartments is possible; however, it is not anticipated that a significant number of construction workers would purchase homes or rent units through a lease arrangement. Workers would not be allowed to use public recreation or camping areas.

Summer months are the typical busy season for the entire region with some of the smaller northern communities experiencing their busiest months during the fall hunting season. Winter weekends in the Durango area are also active. According to discussions with the individual county chambers of commerce and housing providers, most communities could absorb an influx of construction workers. Durango would be the exception, as this community is currently experiencing a housing crisis, particularly in the rental stock. During months when Fort Lewis College is in session, vacancy rates for apartments and rental homes are typically very close to zero (Kennedy 1990).

Private Lands

As stated previously, Tables 2-1 and 2-7 in Chapter 2 indicate general property ownership by agency and private entities. A further analysis of private lands was conducted using property records obtained or transcribed by TransColorado from county ownership records. Parcels that

would be crossed by the proposed route or agency preferred route have been grouped according to size. It has been assumed that parcels of more than 20 acres are rural in character and that parcels in this category would be either undeveloped or would support such activities as agriculture, ranching, forestry, and mineral development. Although parcels smaller than 20 acres could also support agriculture or ranching, it is assumed that these would be secondary land uses and that principal land use would tend to be residential. Sizes of parcels that would be crossed by the proposed route and agency preferred route indicate that 93 percent, or 212 of the 227 parcels that would be crossed by the proposed route and agency preferred route, consist of 20 acres or more.

One large lot subdivision, Summit Ridge on the proposed route north of Mancos, is currently being developed according to local landowners. These lands were subdivided under state statute and not county zoning regulations. The proposed pipeline would cross the following types of parcels in Summit Ridge: 1 parcel of 40 acres; 1 parcel of 60 acres; and 3 parcels of 35 acres.

Tribal Lands

Table 2-1 and 2-7 in Chapter 2 indicate the percent of Indian lands crossed by the proposed route and the agency preferred route. There are three Indian reservations in the vicinity of the TransColorado project: the Southern Ute Indian Reservation, the Ute Mountain Indian Reservation, and the Navajo Indian Reservation. Pipelines crossing Indian Tribal trust lands must acquire a crossing permit from the respective Tribe. Land owned fee simple by an Indian individual or Tribe is treated legally as privately owned land.

The proposed/agency preferred route in La Plata County could cross approximately 0.25 mile of recently acquired Southern Ute land in the La Plata River Valley if TransColorado negotiations with the Southern Ute Indians are successful. Otherwise the pipeline would be constructed along Highway 140, within an existing highway ROW. This land is not currently tribal trust land. (See further discussion in Chapter 4.)

TABLE 3-12

TransColorado Gas Transmission Project
Estimated Housing Units and Vacancy Rates (1989)

Location	Total Housing Units (number)	Vacancy Rate (percent)	Vacant Housing Units (number)
Delta County	9,397	7.23	679
Cedaredge	726	13.36	97
Delta	1,817	8.48	154
Orchard City	795	5.03	40
Dolores County	1,009	41.43	418
Garfield County	12,290	14.65	1,800
Parachute	401	6.23	25
La Plata County	15,835	26.98	4,273
Durango	5,108	4.97	254
Mesa County	40,772	13.09	5,339
De Beque	162	27.16	44
Grand Junction	14,422	0.42	61
Palisade	862	25.75	222
Montezuma County	7,675	22.18	1,702
Cortez	3,602	23.10	832
Dolores	369	2.71	10
Mancos	423	20.33	86
Montrose County	11,340	14.28	1,619
Montrose	4,303	3.28	141
Naturita	396	33.84	134
Nucla	462	34.85	161
Olathe	526	10.27	54
Rio Blanco County	3,027	38.52	1,166
Meeker	1,056	36.84	389
San Miguel County	2,440	27.50	671
Norwood	189	0.53	1
Sawpit	25	0.00	0
San Juan County	29,730	15.84	4,710

Source: Division of Local Government, Department of Local Affairs 1990-1991.

Note: Estimates based on change of average household size for Colorado municipalities according to March 1990 Community Profile Statistics (CPS) and March 1989 CPS: 2.76 and 2.62 for United States.

TABLE 3-13

TransColorado Gas Transmission Project
Estimates of Temporary Housing
Availability Along Pipeline Route

Location	Number of Hotel/Motel[1]	Number of Units	Number of RV Sites	Number of RV Spaces
Meeker	4	100	2	N/A
Grand Junction	32	2,143	6	N/A
Clifton	1	20	N/A	N/A
Palisade	1	15	N/A	N/A
Mesa	1	20	N/A	N/A
Delta	6	126	3	147
Orchard City			1	
Cedaredge	2	20	N/A	N/A
Durango	82	2,800	3	255
Montrose	15	431	4	
Naturita	1	50	N/A	N/A
Norwood	3	40	7	
Cortez	15	700	5	300
Dolores	3	47	5	200
Mancos	4	190	5	609
Farmington (Aztec, Bloomfield)	26	1,000	27	N/A

[1]Includes hotel/motel, condominiums, and cabins.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

Chapter 4 analyzes the environmental consequences of implementing the TransColorado Gas Transmission Company (TransColorado) Proposed Action, the Agency Preferred Alternative, and the No Action Alternative. Only the resources that were considered issues are presented here. Impacts to geology, floodplains, wild horses, recreation, groundwater, wilderness areas, and locatable minerals were raised as issues during scoping. These issues were dropped after further analysis and, therefore, are not included here. The impacts to vegetation are addressed under wetlands, wildlife, water quality and quantity, soils, livestock, and visual resources. The scoping discussion in Chapter 1 gives the rationale for dropping these issues from further analysis in this final environmental impact statement (EIS).

At this time, seven route variations are being considered as replacements for portions of pipeline routes under the Proposed Action and Agency Preferred Alternative. Descriptions of these route variations and associated environmental impacts are located in Appendix B.

ASSUMPTIONS AND GUIDELINES

The following assumptions and guidelines apply to the analysis of the Proposed Action and the Agency Preferred Alternative.

Assumptions

1. TransColorado would comply with all applicable laws and regulations.
2. The pipeline and associated compressor facilities would be constructed as described in Chapter 2 of this document.
3. TransColorado would comply with environmental protection measures and agency requirements set forth in Chapter 2 of this document.
4. A right-of-way (ROW) of 75 feet in width would be cleared (even though TransColorado will use a portion of existing cleared utility ROWs for work space at many locations).
5. No additional routine surface disturbance activities would be required along the operational ROW based on the commitment by TransColorado to allow woody native vegetation to re-establish on the operational ROW.

Guidelines

1. The extent and duration of construction and operation effects on particular resources were estimated. Short-term impacts were considered to be those impacts lasting fewer than 5 years from the time of construction disturbance. Impacts to wildlife and fisheries were considered long-term if they lasted beyond one reproductive cycle, and short-term if they lasted less than one reproductive cycle.
2. Assessment of operational impacts was confined to those resources that are expected to be affected by long-term operational activities. These include air quality (including noise), wildlife, fisheries, and socioeconomic conditions.

3. The impact analysis is based on a 75-foot-wide construction ROW unless otherwise noted. Additional Temporary Use Permits (TUPs) would be needed to disturb additional acreage outside the 75-foot construction ROW. Additional National Environmental Policy Act (NEPA) analysis would also be completed prior to issuing the additional TUPs.

4. Impacts of abandonment were not analyzed in detail for any resource in this EIS because the impacts of abandonment would be very minor. Decommissioning and removing the compressor stations, and regrading and revegetating the access roads and compressor station pads would restore approximately 30 acres to former land uses (rangeland).

PROPOSED ACTION

Impacts to Air Quality and Noise

Construction

Operation of the pipeline construction equipment would increase local concentrations of air pollutants for the short term. Pollutant emissions per day would consist of approximately 9 tons of carbon monoxide, 0.4 ton of unburdened hydrocarbons, 0.1 ton of particulate matter, 1.8 tons of nitrogen oxides, and 0.1 ton of sulfur dioxide. Actual concentrations of these pollutants in the air cannot be easily estimated because the equipment in the spread is constantly moving. These pollutants would be emitted by the pipeline spreads for a total construction period of approximately 218 days (assuming a construction rate of 1.4 miles per day). The daily fuel combustion emissions per mile from these activities are estimated to be equivalent to those emitted from a typical major urban street.

Grading, equipment movement, trenching, and backfilling would increase fugitive dust levels near the pipeline ROW, and on compressor station sites for the short term. Pipeline construction is expected to generate approximately 0.4 ton of fugitive dust per day for an estimated construction period of 218 days; compressor station construction is expected to generate 0.1 ton of fugitive dust per day for a 90-day construction period at each site.

Occupants of 42 residences that have been identified within 500 feet of the pipeline ROW would experience a short-term (2-3 weeks) increase in pipeline construction spread-related noise and fugitive dust during daylight hours. Night-time construction would not be permitted. Typical noise levels from a rural/suburban pipeline construction scenario were estimated at 70 decibels - A weighted (dBA) approximately 300 feet from the site and 60 dBA approximately 1,200 feet from pipeline construction (ENSR 1987).

Operation

Natural gas combustion to power compressor engines would increase the concentrations of air pollutants in the vicinity of each of the seven compressor stations for the long term (50 years). The pollutants released would be primarily carbon monoxide (CO) and nitrogen oxides (NO_x), with lesser quantities of other pollutants.

Table 2-6 (Chapter 2) summarizes potential emissions from the various compressor stations under the Proposed Action. These emissions represent new sources and a modified source for the proposed project. Total NO_x emissions from the Rocky Mountain-DeBeque station are estimated to be approximately 255 tons per year (tpy). This represents 127.5 tpy from two existing 600 horsepower (hp) reciprocating compressor engines installed prior to 1980 and two additional 600 hp engines needed under the Proposed

Action. The existing Rocky Mountain-Debeque compressor station, to which additional compression would be added for the TransColorado project, is currently in compliance with applicable Colorado air quality regulations.

Table 4-1 provides a summary of the expected maximum concentrations of CO and nitrogen dioxide (NO_2) at the various compressor stations expressed in micrograms per cubic meter ($\mu g/m^3$). All predicted concentrations are well below their respective National Ambient Air Quality Standards (NAAQS) using U.S. Environmental Protection Agency (EPA) predictive modeling techniques (EPA 1987). These modeling techniques incorporate several conservative assumptions. Actual concentrations would be less than the values calculated.

Maximum project-related ground level 1- and 8-hour CO concentrations (1,316 and 668 $\mu g/m^3$) are expected within 0.2 mile of the TransColorado-Olathe and Dolores Alternate 2 compressor stations, respectively. However, when these maximum project-related concentrations are combined with the 1- and 8-hour second highest measured background levels, these combined concentrations represent 10 percent of the 1-hour standard of 40,000 $\mu g/m^3$, and 19 percent of the 8-hour standard of 10,000 $\mu g/m^3$. Expected concentrations at other stations would be less.

The maximum project-related ground level NO_2 concentration (44 $\mu g/m^3$) is expected within 0.2 mile of the Rocky Mountain-DeBeque compressor station. This value represents 11 times the estimated background level of 4 $\mu g/m^3$. However, when this maximum project-related concentration is combined with average background levels, the combined concentration represents less than 50 percent of the annual NO_2 standard. Estimated concentration values decrease rapidly beyond 0.2 mile from the source. Again, expected concentrations at other stations would be less.

Under the Prevention of Significant Deterioration (PSD) New Source Review and increment tracking system, only new facilities (or modifications to existing sources) with the potential to emit more than 250 tpy of any regulated pollutant would be required to obtain a PSD permit. Since one-half of the Rocky Mountain-DeBeque compressor station's 255 tpy NO_x emissions (as well as one-half of the project-related predicted ground level concentrations) occur from an existing compressor station, it is unlikely any compressor station under the Proposed Action will require a PSD permit. However, all proposed compressor stations would "consume increment," an accounting system maintained by the permit authority. Accordingly, potential PSD increment concentrations were calculated for all compressor stations.

The greatest predicted PSD Class II NO_x incremental impact from a new facility is 23.1 $\mu g/m^3$ from the Questar-Piceance compressor station. This represents nearly 92 percent of the 25 $\mu g/m^3$ PSD Class II NO_2 increment. Impact from the Rocky Mountain-DeBeque compressor station is 44.0 $\mu g/m^3$, of which one-half (22.0 $\mu g/m^3$) would result from the proposed additional compressor engines. Based on future review by the permitting authority, if an increment violation is expected to occur, the station would not be approved for construction.

At the request of the National Park Service (NPS), potential impacts were also predicted for Dinosaur National Monument, Black Canyon of the Gunnison National Monument, and Mesa Verde National Park. Mesa Verde National Park and the wilderness area portion of Black Canyon of the Gunnison National Monument are PSD Class I areas. The greatest predicted incremental impact would be 0.038 $\mu g/m^3$ at Mesa Verde National Park from operation of the Dolores Alternate 2

Table 4-1

TransColorado Gas Transmission Project
Predicted Air Quality Impacts ($\mu g/m^3$)
Proposed Action

			Class II		Class I			NAAQS[1]		
Compressor	Pollutant[2]	Avg. Time	Source Impact	Increment	Name	Source Impact	Increment	Background	Total Impact	Standard
Questar-Piceance[3]	NO_2	Annual	23.1[A]	25	Dinosaur NM[4]	<0.031[D]	--	4	27	100
	CO	1-hour	142.6[B]	--	--	--	--	2,500	2,643	40,000
	CO	8-hour	47.6[C]	--	--	--	--	1,250	1,298	10,000
WestGas-Meeker	NO_2	Annual	18.3[A]	25	--	--	--	4	22	100
	CO	1-hour	266.5[A]	--	--	--	--	2,500	2,767	40,000
	CO	8-hour	186.5[A]	--	--	--	--	1,250	1,437	10,000
Rocky Mountain-DeBeque[5]	NO_2	Annual	44.0[6,A]	25	--	--	--	4	48	100
	CO	1-hour	56.0[A]	--	--	--	--	2,500	2,556	40,000
	CO	8-hour	39.2[A]	--	--	--	--	1,250	1,289	10,000
WestGas-DeBeque	NO_2	Annual	8.8[A]	25	--	--	--	4	13	100
	CO	1-hour	141.9[A]	--	--	--	--	2,500	2,642	40,000
	CO	8-hour	99.3[A]	--	--	--	--	1,250	1,349	10,000
TransColorado-Olathe[3]	NO_2	Annual	21.1[D]	25	Black Canyon	<0.017[D]	2.5	6	27	100
	CO	1-hour	1,316.2[B]	--	Wilderness	--	--	2,500	3,816	40,000
	CO	8-hour	213.0[B]	--	--	--	--	1,250	1,463	10,000
Rocky Mountain-Big Gypsum	NO_2	Annual	5.3[E]	25	--	--	--	4	9	100
	CO	1-hour	6.7[E]	--	--	--	--	2,500	2,587	40,000
	CO	8-hour	4.7[E]	--	--	--	--	1,250	1,255	10,000
Dolores Alt 2[3]	NO_2	Annual	14.6[D]	25	Mesa Verde NP	<0.038[D]	2.5	4	19	100
	CO	1-hour	1277.7[B]	--	--	--	--	2,500	3,778	40,000
	CO	8-hour	668.0[B]	--	--	--	--	1,250	1,918	10,000

Note: Modeling results incorporate several conservative assumptions; actual concentrations would be less than the values calculated.

[1] NAAQS - National Ambient Air Quality Standards. Background concentration are annual estimates for NO_2 and second highest CO estimates. The TransColorado-Olathe background estimate includes planned increases due to the Louisiana-Pacific waferboard facility.

[2] NO_2 - nitrogen dioxide; CO - carbon monoxide; Concentrations of particulate matter, sulfur dioxide, lead, and ozone would be minimal (below significant levels).

[3] Source: Trinity Consultants, Inc., (1992) and Hoffman (1992).

[4] Dinosaur National Monument is a PSD Class II area.

[5] Rocky Mtn. - DeBeque is an existing compressor station consisting of two 600 hp reciprocating engines, to which two additional 600 hp reciprocating engines would be added. One-half of the reported impacts would result from the additional compressors. Since the addition to the existing Rocky Mountain-DeBeque is not a "major modification," the facility would not be required to obtain a Prevention of Significant Deterioration permit. Increment consumption values are presented for State of Colorado increment tracking purposes.

EPA predictive models used (EPA 1987):

A COMPLEX I - an EPA modification to the Multiple Point Gaussian Dispersion algorithm with Terrain Adjustment (MPTER) model.

B ISCST - Industrial Source Complex (Short-Term) model for averaging periods 24 hours and less.

C VALLEY - initial screening application of the COMPLEX I model for complex terrain.

D ISCLT - Industrial Source Complex (Long-Term) model for monthly, seasonal and annual averaging periods.

E SCREEN - initial screening model that assumes simple terrain.

compressor station. This represents less than 2 percent of the 2.5 $\mu g/m^3$ PSD Class I NO_2 increment. Although this predicted concentration is well below the Class I increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS.

Based on these predicted NO_2 concentrations, annual nitrate NO_3 deposition was estimated to be 0.01 kilograms (kg)/hectare-year for the Dolores Alternate 2 compressor station. This estimated deposition rate represents 0.2 percent of the background deposition rate of 5 kg/hectare-year. The effects on park soils, vegetation, and cultural resources from this level of atmospheric deposition have not been quantified. It is possible that additional NO_3 could increase the growth rates and respiration of soil microorganisms, and that vegetation could grow at a faster rate. Deposition at other NPS areas would be lower.

An analysis of plume visibility impacts at these three NPS administered areas was conducted using Level 1 and 2 screening models (VISCREEN), which provide an initial estimate of plume effects. As summarized in Appendix H, none of the proposed compressor station emission plumes has the potential to be perceptible under "reasonable worst case" conditions (EPA 1988).

The predicted noise impacts listed in Table 4-2 are estimates because the noise levels used to predict the impact of the compressor stations on nearby noise-sensitive areas are based on unspecified engine units, and because noise control methods for each compressor station have not been determined at this time. However, the stations would be designed to limit the compressor noise at residences to a day-night average level (L_{dn}) of 50 dBA at night (7:00 pm to 7:00 am) and a L_{dn} of 55 dBA during the day, which are sound levels that would protect the public from interference and annoyance.

Conclusion. Fuel combustion by pipeline construction equipment would increase the concentrations of CO, NO_x, unburned hydrocarbons, and particulate matter (especially fugitive dust) for the short term along 1.4 pipeline miles per day for an estimated 218 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites. The daily fuel combustion emissions per mile from these activities are estimated to be equivalent to those emitted from a typical major urban street. Occupants of 42 residences would be exposed to a short-term (2 to 3 weeks) increase in pipeline construction spread-related noise and fugitive dust.

Operation of seven compressor stations would increase the local (within 1 mile) concentrations of CO and NO_2. The maximum estimated increases would range from 10 to 19 percent of the allowable 1- and 8-hour CO concentrations, respectively. Maximum estimated NO_2 concentrations would be 11 times the annual average background level, less than 50 percent of the NAAQS. Although not subject to PSD permitting, the combined (existing and additional) Rocky Mountain-DeBeque compressor station shows a potential impact of 44.0 $\mu g/m^3$, which exceeds the PSD Class II NO_2 increment of 25 $\mu g/m^3$. Based on future review by the permitting authority, if an increment violation is expected to occur, the station would not be approved for construction. A plume visibility screening analysis indicates that operation of compressor stations under the Proposed Action would not be perceptible at Dinosaur National Monument, Black Canyon of the Gunnison National Monument, or at Mesa Verde National Park.

Maximum project-related NO_2 concentrations over NPS administered lands would be less than 0.038 $\mu g/m^3$. Although this predicted concentration is well below (less than 2 percent)

Table 4-2

TransColorado Gas Transmission Project
Compressor Station Noise Impacts at Nearest Sensitive Receptors
Proposed Action

Compressor Station	Location	Total HP	Receptor 1[1]		Receptor 2[1]		Receptor 3[1]	
			Range (feet)	Noise Level (dBA)[3]	Range (feet)	Noise Level (dBA)[3]	Range (feet)	Noise Level (dBA)[3]
Questar-Piceance[2]	Rio Blanco County	12,390	N/A	N/A	N/A	N/A	N/A	N/A
WestGas-Meeker	Rio Blanco County	2,700	1,800	49.8	2,600	46.7	3,400	44.3
Rocky Mountain-DeBeque	Garfield County	2,400	4,700	41.5	4,800	41.3	–	–
WestGas-DeBeque	Mesa County	2,700	1,900	49.4	2,800	46.0	3,300	44.6
TransColorado-Olathe[2]	Montrose County	4,750	N/A	N/A	N/A	N/A	N/A	N/A
Rocky Mountain-Big Gypsum[2]	San Miguel County	600	N/A	N/A	N/A	N/A	N/A	N/A
Dolores Alternate 2	Montezuma County	5,400	2,250	43.9	2,300	43.7	2,400	43.3

Note: All horsepower are nominal ratings, which reflect routine operating conditions.

[1]Receptors are numbered by proximity to the compressor station.

[2]There were no known sensitive receptors identified within a 1-mile radius of the Piceance, Olathe, or Big Gypsum compressor sites.

[3]Day-night average sound levels (L_{dn}). Estimates based on manufacturer's data for a 6,200 hp unit with an Equivalent Sound Level (L_{dn}) of 55 dBA at 300 feet.

the applicable PSD Class I NO_2 increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS.

Compression stations would be designed to limit operational noise to 50 dBA at all occupied residences between 7:00 pm and 7:00 am, and 55 dBA during the day.

Impacts to Topography

Cut-and-fill actions to establish a level ROW on steep side sloping (40 percent slope or greater) terrain would decrease the amount of natural slope contour on 11 acres for the long term (greater than 50 years). Cut-and-fill on side slopes greater than 40 percent would be required only in the Ryman Creek drainage in Dolores County, Colorado Milepost (MP) 197.2 to 197.3, and (MP) 200.0 to 200.3) where topographic constraints limit other route options. These slope alterations represent less than 1 percent of the construction ROW area. Active landslide areas crossed by the pipeline would be stabilized by environmental protection measures described in Chapter 2.

Conclusion. Natural slope contour would be changed on 11 acres in the Ryman Creek drainage in Dolores County, which represents less than 1 percent of the construction ROW area.

Impacts to Leasable Minerals

No potential conflicts with oil and gas development and active oil shale and surface coal mine leases were identified. Coal and oil shale resources underlying the ROW that are not under active lease or near-term development represent a potential loss of leasable minerals due to pipeline operation. This loss would depend on mineral prices and available mining methods. Assuming that the pipeline would occupy an undevelopable strip 0.25 mile wide, construction of the pipeline could cause future conflicts with mining operations on 9.25 square miles of underlying oil shale, yielding 25 gallons per ton, and on 2.25 square miles of underlying coal that could be surface-mined.

Approximately 43.9 billion cubic feet (bcf)/year of natural gas were shipped from counties within the Piceance Basin producing region in 1990 (Colorado Oil and Gas Commission 1990). Construction of the TransColorado pipeline would provide pipeline capacity of approximately 101 bcf/year from interconnection points in the Piceance Basin. This represents almost 2.5 times the existing natural gas shipping volume from this region. Recognizing that some fraction of the gas shipped via TransColorado could come from other producing regions (e.g., the Uintah Basin in Utah and Wyoming), it is expected that this added capacity will provide a strong stimulus for connecting existing shut-in wells to the sales pipeline, and for additional drilling. The magnitude of this future development activity cannot be accurately estimated at this time; however, it is expected that new applications for gathering system and drilling projects would be filed with land management agencies should the TransColorado pipeline system receive its final regulatory approvals.

Conclusion. No potential conflicts with oil and gas development and active oil shale and surface coal mine leases were identified. Construction of the pipeline could cause future conflicts with mining operations on 2.25 square miles of underlying coal that could be surface-mined, and on 9.25 square miles of underlying oil shale potentially yielding 25 gallons per ton. Market forces could dictate the feasibility of moving the pipeline.

Construction of the TransColorado pipeline would provide transportation capacity that is approximately 2.5 times the present natural gas volumes sold from Piceance Basin sources. This

capacity increase is expected to stimulate construction of gathering pipeline systems to connect with shut-in wells, and additional drilling in the Piceance Basin region.

Impacts to Mineral Materials

No direct conflicts with active mineral materials (sand, gravel, clay) operations were identified. Future access to unleased Federal and undeveloped mineral materials may be precluded because existing surface uses would take precedence over mineral development for the long term. Assuming a buffer strip of 200 feet, future access to privately owned mineral materials development could occur on approximately 55 acres.

Conclusion. No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to an estimated 55 acres of unleased or privately owned mineral materials.

Impacts to Surface Water Quality

The only potential for increases in salinity to the Colorado River would be from short-term (1 to 5 years) increases in accelerated erosion on saline soils. Implementation of the soil and vegetation protection measures in Tables 2-12, 2-13, and 2-14 would minimize accelerated erosion and salt yields from saline soil areas. Natural rates of erosion on the disturbed saline soils commonly average 3 to 6 tons per acre per year with salinity being approximately 3 percent of the total erosion by weight. Assuming a worst case scenario of short-term erosion increasing by 2 tons per acre per year on the entire width of the ROW crossing saline soils, additional salinity resulting from the Proposed Action (527 acres of saline soils) would be 32 tons per year. To increase the salinity concentration of the Colorado River at Imperial Dam by 1 part per million requires the addition of 10,000 tons of salt in the Upper Colorado Basin.

Trenching, pipe laying, and backfilling in flowing streams would increase suspended sediment in these streams over the time (several days to weeks) required to install the pipe in the streambed. Channel crossings would be conducted during low flow, when the sediment carrying capacity is lowest. Also, during low flow, the sediment size capable of being transported by streamflow would be limited to the fine material (on the larger rivers this would include sand size particles and smaller) that has accumulated in the pore spaces of larger channel bed materials (e.g., gravel, rocks, and boulders). This fine material commonly comprises less than 10 percent of the total channel substrate. Channel substrate disturbance would be limited under Nationwide Permit 12 to the trench dimensions needed for pipeline construction. Table 4-3 compares the expected maximum fine sediment available for suspension in streamflow from the trench material to mean daily sediment yields for the major river crossings. Mean daily sediment yields are calculated from annual sediment yield values. On a daily basis during low flow, the percentage of suspended sediment attributed to pipeline construction would be somewhat higher than that shown in Table 4-3 because actual sediment yields during low flow are lower than the mean daily sediment yield. Similar effects are expected for streams not shown in Table 4-3, for which sediment transport data are not available. The highest sediment concentrations resulting from pipeline construction at river crossings would occur immediately downstream of the disturbed area. Suspended sediment concentration would progressively decrease downstream as the large sediment particles deposit on the channel bottom, and the initial sediment plume becomes attenuated in the channel flow.

Streambed trenching at the Dolores and San Miguel River crossings could expose sediments

TABLE 4-3

TransColorado Gas Transmission Project
Expected Increase in Sediment Yield from Major River Crossings for the Proposed Action and Agency Preferred Alternative

River Crossing and Sediment Station Location	Mean Sediment Yield (tons/day)[1]	Crossing Distance in Feet	Increased Sediment Yield from Pipeline Crossing in Tons	Percent of Daily Mean Sediment Yield
Colorado River near Cameo, CO	25,336	375	34	0.1
Gunnison River near Grand Junction, CO	5,663	250	23	0.4
Dolores River at Dolores, CO				
Agency Preferred	326	75	7	2
Proposed Action[2]	326	100	9	2
La Plata River at state line	77	30	3	4
	77	30	3	4
	77	30	3	4
	77	30	3	4
	77	30	3	4
	77	30	3	4
	77	30	3	4
Animas River at Farmington, NM	4,712	150	14	0.30

[1]Data Source: Iorns et al. 1965; Elliott and De Feyter 1986; Elliott 1987.

[2]All major river crossings are similar for both alternatives except for the Dolores River, as shown.

potentially contaminated by mine wastes. Trenching would disturb an estimated 160 cubic yards of sediment in the Dolores River and 53 cubic yards in the San Miguel River. Sediments in the La Plata and Animas Rivers may be contaminated by polycyclic aromatic hydrocarbons (PAH) from contaminated groundwater. An estimated 128 cubic yards of sediment would be disturbed in the La Plata River, and 92 cubic yards in the Animas. River. Sampling the river sediments at the proposed crossings and developing appropriate construction protection procedures to control re-suspension of contaminants (see Table 2-12 and 2-14 in Chapter 2), would reduce the risk of surface water contamination in these rivers.

Conclusion. Trenching, pipe laying, and backfilling in 5 major rivers, 5 major streams, and 19 minor perennial streams would increase suspended sediment from several days to several weeks during and subsequent to the pipeline installation period. Salinity increases in the Colorado River would be 32 tons per year (maximum) for a 1- to 2-year period. Maximum suspended sediment increases (4 percent of daily mean sediment yield) from trenching are expected at the La Plata River crossings.

Impacts to Municipal Watersheds and Water Supplies

Clearing, grading, and recontouring of 36 acres of ROW across the Palisade municipal watershed would increase soil erosion from the ROW over the short term (1 to 3 years), with a very low likelihood of increased suspended sediment increases in watershed streams (Rapid Creek and Cottonwood Creek). Trenching, backfilling, and surface compaction of the ROW would slightly decrease the permeability of watershed soils over the short term (1 to 3 years). The cleared ROW would be approximately 0.3 percent of the Palisade watershed, which represents a very small portion of the watershed recharge area. The pipeline would be placed farther than 50 feet from all spring clusters and intakes; the pipeline would cross 0.25 mile below Kruzen Springs, and would not intercept the water supply zone for these springs.

Clearing, grading, and recontouring 43 acres of ROW, that portion of the Sink Creek watershed above Guild Reservoir within the Grand Junction municipal water supply system, would increase soil erosion over the short term (1 to 3 years), with a low likelihood of increased suspended sediment in Sink Creek or Whitewater Creek. Trenching, backfilling, and compaction of the ROW would slightly decrease surface soil permeability over the short term (1 to 3 years). However, the Grand Junction water supply would not be impacted by these activities because water in Sink and Whitewater Creeks is diverted for agricultural and stock watering purposes at this time, rather than municipal purposes. The cleared ROW represents less than 2 percent of the Sink Creek watershed, which is a small percentage of the total drainage area above Guild Reservoir.

Future plans for Grand Junction's water rights in Whitewater Creek include diversion of flow to North Kannah Creek or to the Ute Water Conservancy District through the Palisade watershed. The pipeline would not be located in the upper portions of Whitewater Creek and would, therefore, not interfere with diversion of flow to North Kannah Creek. Diversion of flow to the Palisade watershed would most likely occur in the vicinity of Kruzen Springs. The pipeline would be located such that the diversion could be accomplished without crossing the pipeline.

Future plans for development of Sink Creek water include diversion into Brandon Ditch and diversion down Sink Creek to the Colorado River. Depending upon the location of a diversion from Sink Creek to Brandon Ditch, the new diversion may cross the proposed pipeline. Diversion to

the Colorado River would not be impacted by the pipeline because this would occur below the pipeline crossing of the watershed.

Trenching and backfilling across the Dolores River would slightly increase suspended sediment in the river, which would then pass into the Dolores municipal water treatment plant intake located 2.5 miles downstream. This suspended sediment increase would be short-term (several days to several weeks). Increases in sedimentation in the Farmers Ditch inlet to the Farmington water supply reservoir are expected because the ditch inlet from the river is directly downstream (less than 0.75 mile) from the pipeline crossing of the Animas River. Sedimentation would also be expected at the alternate intake (pumps) for Aztec's water supply, which is located approximately 2 miles downstream of the pipeline crossing. The Aztec Ditch, the main water supply intake for Aztec, would be bored, which would prevent sedimentation and loss of service. No impacts are anticipated to the Gurley Ditch or Grand Junction aqueduct because this water supply canal would be bored to prevent interruption in service.

Conclusion. Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed and 43 acres in the Grand Junction watershed would slightly increase soil erosion, and slightly decrease the permeability of the ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes in both Palisade and Grand Junction municipal watersheds. Trenching across the Dolores and Animas Rivers would slightly increase suspended sediment at the Dolores municipal water treatment plant intake and at the Aztec alternate intake for a period of several days to several weeks.

Impacts to Bureau of Reclamation Water Projects

Construction across the inlet canal system of Jackson Gulch Reservoir in Montezuma County (MP 237.3) and the proposed Animas-La Plata project would not interrupt existing or future irrigation water deliveries because TransColorado has committed to bore under lined canals and to trench through unlined canals when they are not in use.

Construction across these canals would not result in damage to the canals because TransColorado has committed to restoring them to their original condition and to monitoring for canal integrity for 2 years following construction.

Conclusion: Based on TransColorado's commitment to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.

Impacts to Wetlands

Disturbance to discontinuous/isolated wetlands (e.g., areas around seeps and springs) will be avoided by pipeline route location. Wetlands (as defined using National Wetland Inventory (NWI) methods; see Chapter 2, Wetlands) that would be unavoidably disturbed by pipeline construction are listed in Appendix Table C-1 and consist entirely of riparian zones or irrigated pasture lands and haylands adjacent to streams and rivers. Options for locating stream crossings to minimize the length of wetland disturbance are often constrained by off-site topographic features, such

as very steep side slopes. However, some additional reductions of wetland disturbance may result from stream crossing relocation/ modification as directed by the U.S. Corps of Engineers (COE) upon their field review for section 404 permit issuance.

Disturbance of wetlands by pipeline construction activities (clearing, grading, and trenching) would result in short- and long-term alterations in wetland vegetation, soils, and water quality but no permanent loss of wetlands. Wetlands are primarily associated with the riparian zones of the major perennial streams and rivers throughout the region traversed by the pipeline. Appendix C, Table C-1, provides a list of the wetlands (riverine and palustrine) that would be crossed by the pipeline.

Little or no reduction of watershed or water quality maintenance functions is anticipated from construction because the limited acreage of riparian wetland disturbance is much less than 1 percent of the total wetland acreage in each of the six river drainage basins traversed by the project; and perpendicular crossings of wetlands are not expected to change the stream channel shape or drainage patterns. Therefore, long-term effects on wetland functions downstream of the crossing are not expected. Similarly, little or no reduction of the productive capacity of wetland soils is anticipated from pipeline construction.

Removal of vegetation from the construction ROW would result in both short- and long-term disturbance to wetlands. Recovery of wetland shrubs (willows, hawthorn, red-osier dogwood, rose) would vary by species. Removal of herbaceous species is expected to be short-term, with recovery to pre-existing cover within 1 to 3 years. Fast-growing species that can resprout from stumps (e.g., willows) could likely recover most of their former size within 5 years; however, because cattle and big game seasonally browse, these shrubs would take more than 5 years to recover.

Cutting of mature trees would reduce wetland function. Riparian woodlands provide important nesting and roosting habitat for many species of birds. Areas where large cottonwoods are present on or near the proposed route include the Colorado, Gunnison San Miguel, Dolores, La Plata, and Animas Rivers. Other areas where losses of mature trees may occur are in the canyons of the West, Middle, and East Forks of the Mancos River, where riparian trees form a closely spaced line along a narrow floodplain bounded by steep side slopes. Individual trees, snags, or groups of trees, which are significantly taller than surrounding trees or are located in an otherwise treeless area, would be avoided by construction. In other areas, the ROW would be aligned to remove the smallest number of mature cottonwoods possible.

Conclusion. Pipeline construction would decrease herbaceous vegetation cover on 13 acres of wet meadows/haylands for the short term; 2 acres of shrub wetlands for the long term, and decrease shrub and tree cover on 14 acres of forested wetlands for the long term. Much less than 1 percent of the wetlands in any watershed would be disturbed by pipeline construction.

Impacts to Soils

Construction would temporarily increase soil erosion from all disturbed soil surfaces with possible continued erosion from disturbed soils on difficult-to-revegetate areas.

Some increased erosion and soil loss would be expected from all disturbed areas along the ROW (approximately 2,865 acres) during the first year following construction, and until vegetation is fully re-established. On areas of saline/alkaline soils (527 acres), steep (greater than 15 percent) slopes (336 acres), or shallow/rocky soils

(1,090 acres) revegetation may be more difficult. One of the primary concerns for this project is increased salinity from erosion on 382 acres of saline soils under the Proposed Action. Natural erosion rates on the disturbed saline soils commonly average 3 to 6 tons per year. Of this amount, salinity is approximately 3 percent by weight. Assuming a worst case scenario of short-term erosion increasing by 2 tons per acre per year on the entire width of the ROW crossing saline soils, additional salinity from the Proposed Action (527 acres of saline soils) would be 32 tons per year. Implementation of the soil and vegetation protection measures presented in Tables 2-12, 2-13, and 2-14 would reduce the accelerated erosion and salt yields from saline areas to less than this worst case scenario.

Application of specific protection measures in Tables 2-12 and 2-14 would also reduce erosion rates to levels equivalent to those on adjacent, undisturbed areas within the first 1 to 5 years following construction, depending on field conditions.

Soil protection measures would minimize or alleviate soil compaction and minimize the mixing of topsoil with subsoil materials during removal, storage, and reapplication.

Conclusion. Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 1 to 5 years. Some increased erosion would be expected on the entire 2,865 acres. On areas of saline/alkaline soils (527 acres), steep (greater than 15 percent) slopes (336 acres), or shallow/rocky soils (1,090 acres) revegetation may be more difficult. Increases in salinity from erosion of saline areas would be a maximum of 32 tons per year. Over the long term, wind and water erosion losses and vegetation productivity losses from the pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.

Impacts to Prime and Unique Farmlands

Pipeline construction would result in the disturbance of 82 acres of prime farmland and 109 acres of farmlands of statewide importance. Disturbance to farmlands would be short-term (two growing seasons). A fraction of 1 percent of farmlands within the counties crossed by the pipeline would be taken out of production for two growing seasons as a result of pipeline construction.

Conclusion. Pipeline construction would decrease production on 82 acres of prime farmland and 109 acres of farmlands of statewide importance. A fraction of 1 percent of the farmland in any county crossed by the pipeline would be taken out of production for two growing seasons.

Impacts to Forestry

Pipeline construction would result in the removal of 264 acres of timber resources (Douglas fir, ponderosa pine, aspen) and removal of fuel wood and fencepost resources from 636 acres of pinyon-juniper woodlands.

Conclusion. Pipeline construction would remove conifer and aspen timber resources and pinyon-juniper fuel wood/fencepost resources from 900 acres. These would be long-term impacts equal to approximately 11 percent of the timber, fuel wood, and fencepost annual harvest from adjacent public lands (1990 harvest).

Impacts to Livestock Grazing

Clearing the ROW and compressor station sites would result in the loss of approximately 238 AUMs per year (2,026 acres). Less than 1 percent of the animal unit months (AUMs)

available in grazing allotments crossed by the pipeline would be lost. No reductions in stocking rates would occur in any allotments as a result of pipeline construction. Disturbance of rangelands would be short-term; on most sites forage production would return to preconstruction levels within 5 years. Forage production may take several years to return to preconstruction levels in areas of low precipitation and poor soils.

Conclusion. Pipeline construction would decrease AUMs by 238 but would not reduce stocking rates in any allotments crossed.

Impacts to Wildlife

Construction activities would temporarily displace big game animals away from construction areas and disturb habitat in the construction ROW. Big game animals (especially elk and deer) would likely decrease their use of habitats within 0.5 mile of construction activities (Lyon and Ward 1982; Reed 1981). This disturbance would be short-term. Following construction, animals would return to the area. Construction would occur during the spring-summer-fall periods when big game animals are generally not using key winter ranges. Due to the transitory and linear nature of construction activities and the thousands of acres of surrounding spring-summer-fall range, big game animals would be able to move to adjacent areas.

Construction would remove most of the vegetation on 1,100 acres of key mule deer range, 1,027 acres of key elk range, and 18 acres of key antelope range. All big game winter ranges (especially these key ranges) are important to maintain big game herds. However, on a regional basis, these acreages of disturbance are a small percentage (less than 1 percent) of the adjacent key ranges and winter ranges available. Until revegetation occurs (at least 5 years), habitat would be lost in the 75-foot ROW, and some big game animals would be displaced. As an example, the highest mule deer densities crossed by the proposed pipeline occur in the Piceance Basin. An average mule deer density herd is 45 deer/square mile, with a high of 120 deer/square mile (Morris 1992). The pipeline crosses 6.1 miles of mule deer severe winter range in the Piceance area (Table 2-15). Assuming a maximum of 120 deer/square mile, 6.1 miles of pipeline construction in the Piceance Basin severe winter range (55 acres of disturbance) would displace a maximum of 10 mule deer. This example would be the worst case; the majority of important ranges crossed by the pipeline have much lower mule deer densities.

It is expected that cover of herbaceous species on most sites will be comparable to pre-existing cover within 5 years. Depending upon the pre-disturbance vegetative conditions, seed mix applied, establishment of native plants found on the site, and physical site variables, the diversity of perennial plants found on the sites may exceed or fall short of pre-disturbance conditions. Some sagebrush and pinyon-juniper communities may exhibit much lower species diversity prior to disturbance, and more complex communities, such as good condition riparian areas, would probably exhibit a decrease in perennial species diversity after disturbance. It is expected that trees (ponderosa pine and aspen) would require 40 to 60 years to reach equivalent size of most trees present in the preconstruction ROW; pinyon pine and Utah juniper could require 50 to 100 years to reach equivalent size. Taller shrubs, such as Gambel oak and serviceberry, would require 15 to 20 years to reach their former size, even if they were to regenerate from root sprouts. Smaller rangeland shrubs (e.g., big sagebrush, rubber rabbitbrush) might re-establish more rapidly (5 to 10 years); saltbush species would regenerate more slowly (15 to 20 years). For patch cutting in mule deer and elk habitat, generally a maximum forest opening of 40 acres and a maximum opening width of 1,200 to 1,600 feet are recommended (McAninch et al.

1984). The proposed pipeline ROW would be 75 feet wide, and a 4-mile section would clear approximately 36 acres. This long and narrow pipeline disturbance is much less than big game habitat changes from timber operations in forested areas. Along 64 miles of key elk range and 76 miles of key mule deer ranges, the proposed pipeline parallels existing ROWs. With the added 75-foot TransColorado construction ROW, the total width of disturbance along these existing ROWs would range from 150 feet to 350 feet. Even with a combined 350-foot ROW, 1 mile of ROW would disturb approximately 42 acres.

Construction activities would temporarily displace small game animals from the construction ROW, disturb habitat in the construction ROW, and result in a limited loss of some nests or young. Displacement of small game animals away from construction would be a short-term impact. Some species with depressed populations would be able to relocate to adjacent habitats. Other species, with populations at or near the maximum carrying capacity, would suffer some increased population mortality and loss of production during the construction year. The expected losses would not have a detectable effect on species populations. The pipeline would cross six sage grouse breeding/nesting areas, resulting in a long-term disturbance of 254 acres of sage grouse breeding/nesting habitat. A nesting area is defined as a lek site and surrounding 2-mile radius (approximately 8,042 acres). Six breeding/nesting areas would include approximately 48,252 acres. Thus, the total acreage disturbed by pipeline construction is very small (less than 1 percent of the breeding/nesting areas crossed). The proposed pipeline would pass through one lek site and pass within 200 to 300 feet of another lek site. Habitat disturbance in these areas could force breeding sage grouse off of traditional leks. Long-term population reductions could result for sage grouse associated with these two leks. Removal of sagebrush escape cover near these leks could cause a long-term increase in predation of breeding sage grouse (Braun 1991).

Construction activities would decrease the numbers of small, less mobile, nongame animals in the construction ROW. Other construction impacts would include temporary displacement of animals away from construction activities and disturbance of habitat on the construction ROW. Adequate habitat exists adjacent to the construction ROW to support some displaced animals. Species that are at or near carrying capacity would suffer some increased mortality and loss of production for at least the construction year. The construction ROW would remain unsuitable for some species until the structure of the vegetation returns to preconstruction conditions. The disturbed ROW might serve as a travel lane for nest predators (e.g., raccoon, skunk, and parasites [brown-headed cowbird]) into areas where they were previously uncommon. The edges created by the ROW may influence the suitability of adjacent undisturbed habitats. Construction activities in grassland, sagebrush, and saltbush habitats would result in a short-term structural vegetation change. Construction would disturb 900 acres of forested habitats, 454 acres of mountain shrub habitats, and 9 acres of riparian habitats. Construction in these habitats would result in a long-term structural change in vegetation. Large shrubs and trees would take more than 5 years to revegetate in the ROW. The structural change would set back succession and make changes to the suitability of the habitat (in the 75-foot construction ROW) for a variety of nongame species. Nongame species' diversity and composition would change in this 75-foot construction ROW until the vegetation returns to preconstruction conditions. Very minor changes in species' composition would be expected to occur in undisturbed habitats immediately adjacent to the construction ROW. Large alterations in vegetation (pinyon-juniper chainings)

have been shown to cause major changes in species diversity (Sedgwick and Ryder 1987). For example, birds adapted to pinyon-juniper habitats have been shown to extend their territories not more than 100 meters (328 feet) into large chainings, and formerly common pinyon mice have been reported absent from large chainings. The narrow 75-foot construction ROW would dissect the territories of numerous nongame animals. Small, less mobile animals might be hesitant to cross the newly disturbed ROW. However, after vegetation becomes established, the ROW is not likely to prevent or greatly inhibit animal movement and would not produce a long-term barrier.

Conclusion. Construction disturbance would decrease less than 1 percent of the surrounding key game ranges and vegetation types and would displace an unquantifiable number of animals. No regional population declines would result from pipeline construction for any species. A local population decline could occur for sage grouse utilizing the two leks that would be disturbed by construction activities.

Impacts to Fisheries

Construction activities would decrease aquatic organisms and fish populations, remove substrate, and increase sedimentation.

Of the 5 major rivers, 5 major streams, and 19 minor perennial streams crossed by the pipeline, 15 are categorized as Class I, cold water aquatic resources. The remaining are classified as Class 2, cold water or warm water aquatic resources. Reduction in fish population would result if important spawning or rearing habitats were covered by sediment or disturbed during construction. Trenching and instream disturbance associated with pipeline construction would increase suspended sediments to levels exceeding those typical for low flow periods. A description of surface water quality impacts is provided in the surface water quality section in Table 4-3. Sediment loads would be short-term and well below mean daily levels carried by the streams. Because of the low flow conditions, which would be present when construction occurs, the heavier sediments would settle out quickly, fairly close to the construction site. Since all aquatic organisms are accustomed to handling sediment loads much higher than the mean daily loads, the potential for sediment-related mortality of aquatic organisms is low. Loyd (1985) found that fish responded to increased sediment by reduced feeding or other physiological stresses, rather than by mortality. Further, as indicated in Table 4-3, total sediment volumes placed in suspension as a result of construction would not be large enough to bury a significant amount of streambed in sediment. Crossings would be completed outside the spawning period for trout; therefore, no direct impacts to trout eggs or fry are expected. Fish mortalities, if any, would be limited to a small number of fish trapped in pools or accidentally killed by equipment. Fish may avoid the construction site due to increased sedimentation or noise. Since no critical spawning areas have been identified at the crossings, impacts to important fish species would be considered minor. These impacts would be short-term, generally less than 1 year or one reproductive cycle for fish and several months for other aquatic communities.

The removal of streamside vegetation and the resultant reduction in shading and potential for increased bank erosion would degrade aquatic habitat. Because of the small percentage of habitat on each stream that would be disturbed, changes in fish populations are expected to be unmeasurable. No fisheries impacts would occur in the event of an instream release of natural gas. Methane, the primary pipeline product, is not toxic to aquatic life and would disperse into the atmosphere.

Conclusion. Pipeline construction would result in short-term increases in sedimentation and short-term losses of streambed substrate and biota in 15 Class I cold water rivers and streams and 14 Class II rivers and streams. The streambed disturbance would result in very limited fish mortality and no loss of fishery quality or recreational opportunities.

Impacts to Threatened and Endangered Species

This section analyzes impacts to species listed under the Endangered Species Act, candidates for listing under the Act, and those proposed for listing under the Act. It also analyzes impacts to those species listed as endangered or threatened under State laws.

A draft biological assessment (BA) (ENSR 1992) has been completed for that portion of the agency preferred route that has been field inventoried. The draft BA evaluates impacts to threatened, endangered, candidate, and proposed species from construction of the agency preferred route. The draft BA incorporates information from species experts, literature, and field surveys which were completed along the agency preferred route. Based on the draft BA, the USFWS has issued a draft biological opinion (BO) giving a preliminary non-jeopardy opinion for the species along that portion of the agency preferred route that has been field inventoried. The draft BO is included in Appendix E. A final BA and final USFWS BO will be prepared once the inventories are completed. If the impacts in the final BA and final BO are different from those discussed in this final EIS, additional environmental analysis may be required to disclose the differences in impacts. Any additional environmental analysis will be included in the RODs.

The BLM and USFS will not make a decision regarding the project and no RODs or ROW grant will be issued until the final USFWS BO is received. The final USFWS BO will be included in the BLM and USFS RODs.

The draft BA and draft BO are the basis for this impact analysis. The draft BA and draft BO are applicable to the proposed route with the exception of the segment between Redvale and the Montezuma-Dolores county line. Although this segment contains suitable habitat for listed plants and black-footed ferrets, no inventories will be completed unless this route is selected. For the remainder of the proposed route, the needed surveys have been, or will be, completed along with those conducted for the agency preferred route. Compliance with the environmental protection measures outlined in Chapter 2, would ensure protection for most threatened, endangered, candidate and proposed species.

Animals

Potential habitat for the southwestern willow flycatcher would be disturbed where the pipeline crosses riparian shrublands in southwestern Colorado and northern New Mexico. All perennial stream crossings would occur during low flow periods in late summer to early fall. Crossings of rivers which provide habitat for listed fishes (see Appendix E-1) would occur between September 1 and October 15. Direct impacts to nesting southwestern willow flycatchers would be minimized or avoided by these construction dates which avoid all but the last portion of the nesting season on most stream crossings. Loss of nesting habitat would be minimal, and within 5 years willow communities at the crossing sites should have regained sufficient height to be useable by flycatchers.

The expected impacts to river otters would be limited to short-term disturbance during construction. No permanent change in otter habitat quality is expected as a result of pipeline construction.

Construction would disturb prairie dog colonies and could cause impacts to black-footed ferrets if any are present in the prairie dog colonies. If ferrets are found, the nature of potential impacts, and mitigation will be determined in consultation with the U.S. Fish and Wildlife Service (USFWS). Because the portion of the proposed route between Redvale and the Montezuma-Dolores County line is known to contain substantial, uninventoried, prairie dog colonies, the proposed route has greater potential to effect ferrets than the agency preferred alternative.

Sediments contaminated with PAH may exist in the Animas and La Plata Rivers in New Mexico resulting from past oil and gas drilling activities. The USFWS (USFWS 1992) expressed concerns that listed fish species in the San Juan River could be exposed to these organic compound contaminants via three pathways: 1) from resuspension of these sediment contaminants (if present) during trenching and pipe laying across the river; 2) from resuspension of these sediment contaminants (if present) in the event of a pipeline leak or rupture under the streambed of these rivers; and 3) from release of these contaminants directly from the pipeline if the pipeline leaked or ruptured under the streambed of these rivers. The USFWS believes that these contaminants could be introduced into the pipeline during construction and mobilized by hydrostatic testing, or could be contained in condensates that collect in the pipeline during operation.

The presence of contaminated sediments at these stream crossings, and the potential impacts to listed fish from the potential pathways described above to listed fish are undetermined at this time. Specific mitigation will be developed in consultation with the USFWS (see Chapter 1, Federal Approval Process and Authorizing Actions section).

Disturbance of threatened and endangered species during emergency pipeline maintenance activities is another potential impact. Species most sensitive to this would be wintering and nesting bald eagles, nesting spotted owls, black-footed ferrets, and the Colorado River fishes. Effects may include nest abandonment, loss of fish eggs or fry, and direct mortality. The one known bald eagle nest that occurs along this route is located over .5 mile from the right-of-way and would not be subject to abandonment. Incidents requiring this type of maintenance occur so infrequently that the resultant impact is not likely to jeopardize the continued existence of a listed species or cause the listing of others. See the Impacts to Public Safety section in Chapter 4 for further details on pipeline failure incidents.

Conclusion. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered animal species. The likelihood that emergency response actions would disturb threatened and endangered species during crucial periods is very low.

Plants

A plant survey, completed during the spring of 1991 (USFWS 1991c) for segments of the proposed route that are common with the agency preferred route, identified threatened and endangered plants occurring within the proposed pipeline ROW. Reroutes were established around all rare plant occurrences except for two locations of the Uinta Basin hookless cactus (20 individuals) and two locations of the DeBeque milkvetch (350 plants). Construction of the proposed route would remove these 20 cacti and 350 milkvetch plants (ENSR 1992). Based on the dispersed nature of Uinta Basin hookless cactus populations, the small number of plants to be removed are probably in the midst of a larger population of widely scattered plants (USFWS 1991c). The 20 individuals represent 0.16 percent of the Colorado population and 0.09 percent of the total known population, as

documented in the recovery plan for this species. The 350 individuals of Debeque milkvetch that would be lost represent about 16 percent of the two populations impacted, and about 0.3 percent of the confirmed population of this species (Coles 1992). The milkvetch is also expected to partially recolonize the ROW, as it has other sites disturbed by pipeline construction (Anderson 1991). The loss of these plants would not affect the continued existence of either species (ENSR 1992).

The potential exists for additional impacts to rare plants on the section of pipeline between Redvale and the Montezuma-Dolores County line. This section has not been surveyed.

Conclusion. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of most threatened and endangered plants. Twenty individuals of Uinta Basin hookless cactus and 350 individuals of DeBeque milkvetch would be removed by construction activities. The likelihood that emergency response actions would impact rare plant populations is very low.

Impacts to Cultural Resources

The following analysis is based upon the research design and proposed cultural resources treatment plan discussed in Appendix F, which recommends 1) avoiding, where possible, all sites eligible for listing on the National Register of Historic Places (NRHP), 2) excavating extensively approximately 30 percent of all NRHP-eligible sites that cannot be avoided, 3) testing and monitoring the remaining NRHP-eligible sites and non-site localities (areas where alluvial soil deposits indicate a high potential for buried sites) suspected of having subsurface archaeological values, and 4) treating according to the monitoring archaeologist any features discovered during monitoring.

The analysis is also based upon the Class III inventory report (see Chapter 3) of the final EIS agency preferred route. According to the Class III report, approximately 15 percent of NRHP-eligible sites along the final EIS preferred route could be avoided within the 75-foot wide corridor.

For the purposes of this analysis, it was assumed that a similar number of eligible sites could be avoided along the proposed route. Using this assumption, an estimated 15 percent of all NRHP-eligible sites would be avoided during construction and remain undisturbed by construction activities. Excavating approximately 30 percent of the remaining eligible sites that cannot be avoided, as recommended in Appendix F, would result in disturbance to these sites, but the scientific database would be increased by dissemination of the cultural resource information and by depositing the excavated items in approved facilities. Testing prior to construction and monitoring during construction of the remaining NRHP-eligible sites and treating them according to the monitoring archaeologist and land owners' instructions could result in partial destruction of approximately 55 percent of eligible sites as a result of construction activities. Information collected as a result of testing and monitoring these sites would be placed in the scientific database.

The Class III inventory for the final EIS agency preferred route will be completed in summer 1992. The proposed cultural resource treatment plan will be updated with new information following the completed Class III inventories. The final cultural resource treatment plan will be submitted to the Colorado and New Mexico State Historic Preservation Officers (SHPOs), Advisory Council on Historic Preservation (ACHP), and the FERC for concurrence. If the approved treatment plan for cultural resources is different than that described in this final EIS, additional environmental analysis may be required to

disclose the differences in impacts. Any additional environmental analysis will be included in the BLM and USFS RODs.

The BLM and USFS will not make a decision regarding the project and no RODs or ROW grant will be issued until the two SHPOs, the ACHP, and the FERC concur with the final treatment plan. The final SHPO concurrence will be included in the BLM and USFS RODs.

Conclusion. Assuming approximately 15 percent of the NRHP-eligible sites could be avoided and approximately 30 percent of the remaining eligible sites would be excavated, approximately 55 percent of all NRHP-eligible sites could be partially destroyed by construction activities.

Impacts to Native American Religious Values

Pipeline construction disturbance could reduce the value of Native American traditional use or religious areas that may be present on or near the ROW. No Native American traditional use or religious areas are known at this time. The Bureau of Land Management (BLM) will continue to coordinate with the appropriate tribes to identify these areas to assure their protection.

Conclusion. No Native American traditional use or religious areas are known at this time.

Impacts to Paleontological Resources

The following analysis is based upon the paleontological survey (Armstrong 1992) of the draft EIS agency preferred route. According to the report, fossils were found in 19 localities in the Morrison, Wasatch, and Animas Formations. Of these 19 localities, 2 have been determined to be of Class I scientific significance.

For the purposes of this analysis, it was assumed that a similar number of sites would be found along the final EIS agency preferred route once it is surveyed, and that an equal number of localities will be determined to be of Class I scientific significance.

Using these assumptions, an estimated 19 localities bearing critical, significant, and important (see sensitivity criteria in Chapter 3) fossils would be disturbed by construction activities. No estimates have been made as to the number of fossils that would be excavated; however, these fossils would be disturbed but not destroyed as they would be deposited in approved facilities. Information about fossils not excavated would be disseminated to the scientific community and, therefore, would increase the scientific database. Any fossils not excavated could be partially or totally destroyed by construction equipment.

Conclusion: An undetermined number of fossils in the Class I paleontological localities would be excavated and would not be destroyed by construction activities. An undetermined number of fossils would be left in place and could be partially or totally destroyed by construction activities. Information about these sites would be disseminated to the scientific community.

Impacts to Visual Resources

Thirty locations along the proposed route were initially identified as having potential for high visual impacts based on the BLM and U.S. Forest Service (USFS) visual resource management (VRM) objectives, physical contrast ratings, and visibility of the pipeline and associated facilities as explained in Appendix G. At 19 locations, it was determined the high visual impacts could be reduced by applying environmental protection measures, such as limiting ground disturbance, maintaining vegetative screening, recontouring, and replacing native vegetation. These and other

environmental protection measures for reducing visual impacts were placed in Tables 2-12 and 2-14 as requirements for project approval.

For the visual resource analysis, a general period of 1 to 5 years following construction was used as the basis for the impact ratings. Field analysis conducted throughout the study area indicated that visual improvement beyond this period was minimal for most areas. As a result, the impact levels described herein represent both short- (less than 5 years) and long-term (more than 5 years) impacts.

The analysis following application of the environmental protection measures indicates that the presence of the pipeline and compressor stations would result in a high visual impact in 11 locations.

High Visual Impact Areas

Compressor Stations

1. Questar-Piceance Compressor Station (MP 0). The compressor station would appear as a large industrial facility that would create high contrasts with the existing, undeveloped rural landscape. The site would be highly visible by viewers traveling along the adjacent county road.

2. WestGas-DeBeque Compressor Station (MP 48). Such a large facility would be out of character with the surrounding agricultural landscape and would be visible from rural residences and viewers traveling local roadways and U.S. Interstate 70 (I-70).

3. TransColorado-Olathe Compressor Station (MP 124.5). This compressor station would be observed by viewers on Transfer Road, which passes directly beside the proposed site. The site would create a high contrast with the surrounding, undeveloped rural landscape consisting of native woodland and shrubland vegetation communities.

Pipeline Crossing

1. Roubideau Creek (MP 113 to MP 114). This crossing would create long-lasting scars on the steep, arid slopes of this narrow creek drainage. Successful revegetation to conceal such a scar in this location would not be possible. This area is highly visible from nearby rural residences on the east side of the canyon.

2. San Miguel River (MP 153.0 to MP 154.4). The crossing of this canyon would add to the existing pipeline scar in this location. The narrow, steep and rocky slopes would not revegetate within an acceptable time frame to conceal the scars in this scenic river canyon setting.

3. Dolores River (MP 225.2 to MP 230.2). This crossing would be visible from Highway 145, which is designated a state scenic byway. While this crossing can be significantly reduced through the environmental protection measures committed to, the arid nature of the south-facing slopes and the width of the disturbance necessary would result in long-term scars, which would be visible to large numbers of byway travelers in this sensitive and scenic setting.

4. Millwood (MP 234.5 to MP 236.1). In this location, the pipeline would run adjacent to Montezuma County Road 40/USFS Road 559 in a ponderosa pine forest setting. The 75-foot forest clearing adjacent to this road would be highly visible. Under the best of revegetation scenarios, this disturbance would take many years to return to a similar character.

5. West of the West Mancos River (MP 239.8 to MP 240.5). The conditions in this area are similar to those described for Millwood. This 0.7-mile segment would closely parallel County Road 42/USFS Road 561 in a forest setting, and would result in highly visible, long-term disturbance.

6. East of the West Mancos River (MP 240.7 to MP 241.1). This 0.4-mile segment would be visible from USFS Road 561 as it climbs out of the steep, wooded slopes of the West Mancos River. The steepness of the slopes, combined with the width of clearing in an otherwise heavily vegetated setting, would result in a highly visible, long-term unnatural clearing.

7. Highway 140 south of Redmesa (MP 269.7 to MP 270.6). Here the pipeline would closely parallel Highway 140 in a moderately steep sagebrush scrub setting. The orientation of the minor ridges along the ROW and the width of the clearing would result in highly visible, long-term visual contrasts as seen from this major roadway.

8. East of Highway 170 (MP 276.2 to MP 276.6). This segment would cross some low, rocky ridges with sparse pinyon-juniper/sagebrush scrub cover. Disturbance in this area would be difficult to revegetate and would be highly visible from nearby residences.

Visual Resource Management Objective Exceedence Areas

Within the 11 high visual impact areas, the BLM VRM guidelines would be exceeded in three locations: Roubideau Creek (MP 113.0 to MP 114.0 - pipeline), Roubideau Creek (MP 114.2 to block valve), and Transfer Road (MP 124.5 to compressor station). USFS visual management guidelines would be exceeded in three locations: Dolores River (MP 225.2 to MP 230.2), Millwood (MP 234.5 to MP 236.1), and west of Mancos River (MP 239.8 to MP 240.5).

Grand Mesa Area

In the case of the Grand Mesa, the initial technical analysis indicated that impacts would reach a moderate level. That is, a discontinuous clearing pattern in the oak and pinyon-juniper vegetation would be visible from certain viewpoints in the Grand Valley but not to the degree that it would dominate the view. Because of the substantial public concern, a more detailed visibility analysis and visual simulations were conducted. Based in part on a BLM seen-area analysis and coupled with previous field analysis, nine viewpoints were selected. The following criteria were used in selecting the areas: viewer sensitivity, volume of viewers, viewpoints with the highest potential for visibility of the alignment, and area representativeness of the viewpoint. The nine viewpoints chosen were from as far west as the Colorado National Monument, as far east as East Orchard Mesa, as far north as Walker Field, and as far south as Whitewater.

From computer terrain models of the Grand Mesa, enlarged computer-generated 3-D perspectives were developed that showed the limits of visible 75-foot clearing along the proposed ROW from each of these nine viewpoints. The results showed that the Whitewater viewpoint would have the most direct views of the proposed disturbance. These plots revealed that virtually none of the alignment would be visible from the Mesa Mall, Walker Field, or I-70 near Clifton. Only one small segment near Kruzen Springs would be visible from five of the viewpoints, including the Colorado National Monument, Redlands, the B 1/2 Road overpass on State Highway 50, State Highway 146 (central Orchard Mesa), and East Orchard Mesa.

A subsequent computer analysis was developed showing the potential reduction in visibility using

a 50-foot ROW as seen from the Whitewater area. The results of this analysis indicated that a substantial reduction in the amount of visible disturbances could be obtained from such a measure. Below Kruzen Springs (from near MP 74.0 to MP 75.7), TransColorado committed to keeping the ROW to 50 feet rather than 75 feet. TransColorado also agreed to break up the pattern of disturbance by planting appropriate vegetation to correspond with the existing types in selected areas (see Appendix G, Table G-1).

Using the computer models as the basis to assure accuracy, photo simulations were developed from two of the nine viewpoints. Photo simulations show an area as viewed from a particular viewpoint, with the photo view subsequently modified to present the short-term or long-term visual impacts associated with the proposed project (e.g., from ROW clearing). Whitewater was chosen as one because it represents the most critical viewpoint. East Orchard Mesa was chosen as the second because it is representative of the closest views of large numbers of people in the Grand Valley. Figures 4-1, 4-2, and 4-3, respectively, show existing conditions, visibility immediately following rehabilitation, and visibility following successful revegetation as seen from Whitewater. Figures 4-4 and 4-5 show existing conditions and visibility, respectively, immediately following rehabilitation as seen from East Orchard Mesa.

Conclusion. Thirty locations along the proposed route have potential for high visual impact. Of the 30 locations, it was determined that by applying visual environmental protection measures, the high impact could be reduced to moderate or low in 19 locations. The remaining 11 locations would still result in a high (short- and long-term) visual impact on approximately 6.0 miles along the ROW at 8 locations and at 3 compressor stations. BLM VRM guidelines would be exceeded in 3 locations; USFS visual quality objectives (VQO) guidelines would also be exceeded in 3 locations. The visual impact to the Grand Mesa would be low except for the most critical viewpoint from Whitewater, which would be moderate.

Impacts to Transportation System

Construction would result in the improvement of 199 miles of dirt and gravel roads, primarily on public and national forest lands. Construction would also cause short-term traffic delays at crossings of county, BLM, and USFS roads. Construction-related traffic would also contribute to temporary congestion and possible delays near each construction site and could contribute to road damage to dirt/gravel roads during unexpected weather conditions. The damage would be short term as it would be repaired.

Conclusion. Construction would result in possible short-term traffic delays during road crossings and would require improvement or grading of 199 miles of dirt/gravel roads. Construction might damage dirt and graveled roads for the short term but not for the long term, as the roads would be repaired.

Impacts to Solid Waste Facilities

Pipeline construction would increase contributions to solid waste landfills. Pipeline construction activities would generate solid wastes, such as ordinary trash, packaging materials, and other construction waste, at an estimated rate of 20 cubic yards per day for all three construction spreads for an estimated total of 4,360 cubic yards during the construction period. This solid waste would be placed in some or all of 16 identified licensed landfills in the counties crossed by the proposed route. This would represent only a minor incremental addition of solid wastes to these facilities and would be of a short duration during the construction period.

Conclusion. An estimated 4,360 cubic yards of construction-related solid waste would be generated by the Proposed Action and placed in licensed landfills along the pipeline route.

Impacts to Socioeconomic Conditions

Construction

Communities and Residences

Because of the short duration of the construction period, it is assumed that 15 percent of the non local work force would bring their families. Based on the 1979 Pipeline Construction Workers and Community Impact Survey Reports, 0.3 dependents per non-local worker are expected (Mountain West Inc. 1979). This would result in an average of 324 dependents arriving in the region. Total non-local workers and dependents per construction spread would increase local populations by less than 5 percent based on the assumption that one construction spread would be based in Grand Junction, one in Montrose, and one equally divided among Cortez, Durango, and Farmington. With this limited influx of people into the area, the project could increase demand for local services, such as law enforcement, fire protection, medical services, and school services. It is anticipated that this increased demand would require no new local expenditures for labor or capital, and that the existing institutions would adequately absorb this temporary growth.

The presence of an increased labor force during construction would increase demands for housing in some localities. It is assumed that 26 percent of non-local workers would occupy rental units, 42 percent would occupy motel/hotel units, and 28 percent would choose to stay at recreational vehicle (RV) sites (ENSR 1991c). Rental and RV sites are minimal and almost nonexistent in Durango during the school year (Kennedy 1990). It is not likely that Durango would serve as a construction crew base for the Proposed Action due to the very limited rental housing stock and the elevated temporary housing (e.g., hotel, motel, and apartment) costs in that community. These market factors, it is assumed, would dissuade workers from seeking accommodations in Durango. Cortez and Farmington would serve as more logical worker bases for construction of the Mancos Valley and southern portions of the proposed pipeline.

The project would employ an average of 1,440 persons, of which 25 percent would be local. Approximately $5.8 million would be spent on local goods and services during pipeline construction.

A helicopter survey of residences near the proposed pipeline was conducted in January 1991. During this survey, 42 residences were identified within 500 feet of the pipeline ROW. The occupants of these residences and other persons using property within 1,200 feet of the ROW would experience short-term increases in construction noise and dust during daylight hours for a period of 2 to 3 weeks. Typical noise levels from a rural/suburban pipeline construction scenario were estimated at 70 dBA approximately 300 feet from the site and 60 dBA approximately 1,200 feet from pipeline construction (ENSR 1987).

Operation

Taxes and Fees

Operation of the pipeline would increase the property tax base by approximately 5 percent or less in all counties crossed by the pipeline except for Dolores County, which could experience a 20 percent increase. This estimate is based on project-related tax receipts for the first year of operations (1993) of $4.2 million in 1991 dollars (including pipeline and seven compressor

Figure 4-1
Existing Conditions
Viewpoint: Highway 50 Near Whitewater
Image should be viewed at 21 inches for proper scale relationship

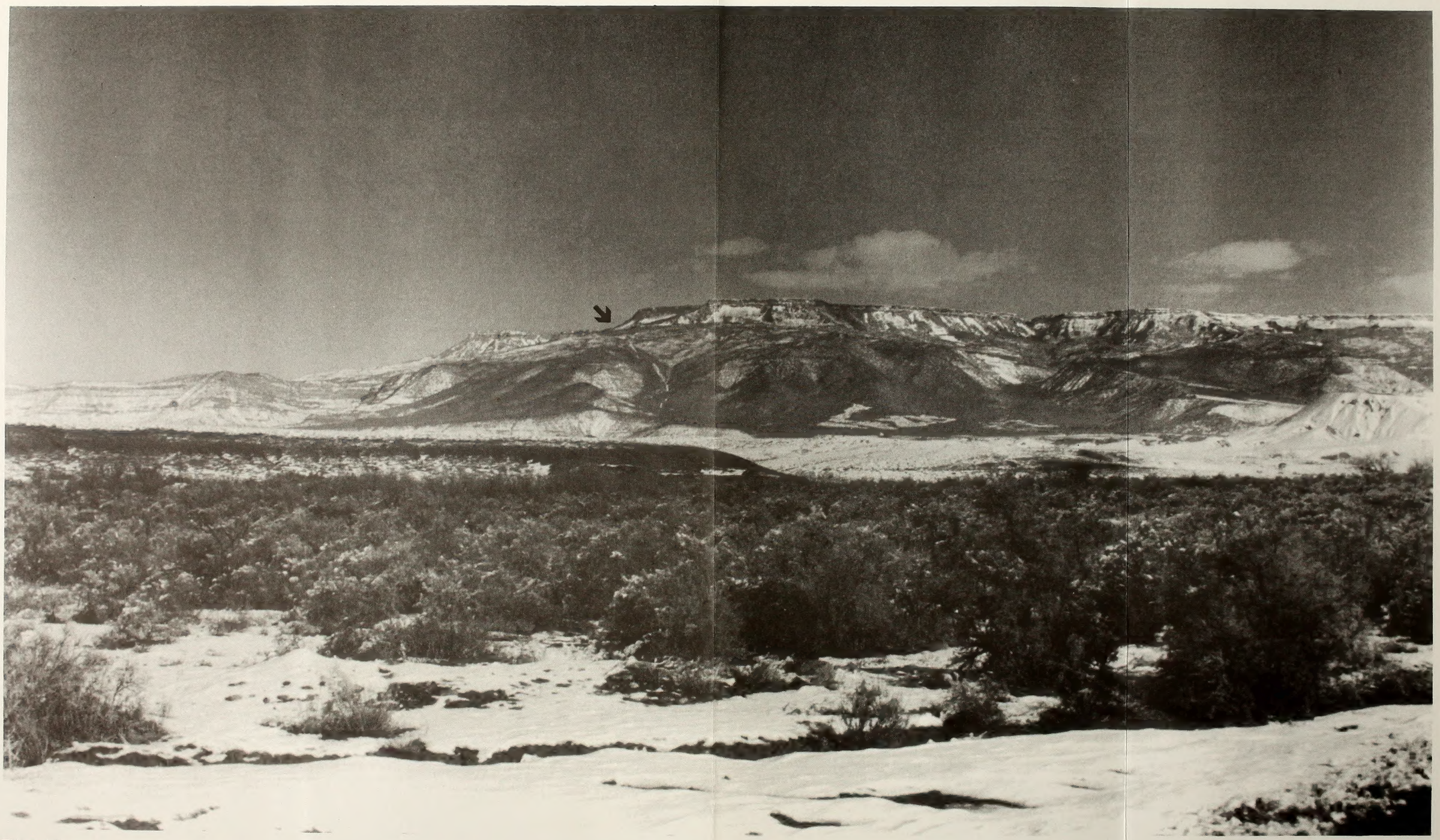


Figure 4-2
Photo Simulation: Post Construction Short-term Visual Conditions
Viewpoint: Highway 50 Near Whitewater
Image should be viewed at 21 inches for proper scale relationship

Figure 4-3
Photo Simulation: Post Construction Long-term Visual Conditions
Viewpoint: Highway 50 Near Whitewater
Image should be viewed at 21 inches for proper scale relationship

Figure 4-4
Existing Conditions
Viewpoint: Orchard Mesa Near 32 and D Roads
Image should be viewed at 21 inches for proper scale relationship

Figure 4-5

Photo Simulation: Post Construction Short-term Visual Conditions

Viewpoint: Orchard Mesa Near 32 and D Roads
Image should be viewed at 21 inches for proper scale relationship

stations) and an estimated total cost of the pipeline at $136.1 million, or approximately $450,662 per mile. Property taxes would be assessed and collected by the individual counties and school districts along the route.

Employment of approximately 20 persons for the operation activities would contribute approximately $18,240 monthly ($218,880 annually) to sales of local goods and services. This estimate is based on an estimated monthly payroll of $60,800.

Based on a 1991 fee schedule, an annual ROW fee of approximately $10,000 would be paid by the applicant to both the BLM and USFS for use of the ROW granted on public lands. The per acre rate for this fee is set annually by the Federal government and varies by county.

Natural Resources and Crop Production

Removal of timber, fuel wood, and livestock forage from the construction ROW would decrease the availability of these resources, which can be expressed in dollar values. Harvest value of commercial species (ponderosa pine, Douglas fir, aspen) from the construction ROW is estimated to be $9,600; harvest value of pinyon and juniper fuel wood is estimated to be $47,700. These harvest values would represent the entire expected life-of-project loss because of the slow regeneration rates of forest trees, and because TransColorado would allow timber regeneration on the construction and operational ROW. Loss of forage from the construction ROW over a 5-year period (estimated to be the forage recovery period) is estimated to be approximately $3,000. When these values are converted to an annual basis (harvest value is divided by a 50-year project life), these natural resource values represent 11 percent of the annual ROW fee charged to TransColorado by Federal agencies.

Pipeline installation along the construction ROW would decrease production of annual and perennial (hayland) crops during the year of construction. Based on a Colorado statewide 1990 market value of $82 per acre of hay crops (Sakry 1991) expected crop values lost for 2 years on 273 acres of agricultural lands would be $44,800. This production loss would be much less than 1 percent of the annual agricultural production value in the counties crossed by the pipeline.

Private Lands

Because the noise levels used to predict the impact of the compressor stations on nearby noise-sensitive areas (NSAs) are based on unspecified engine units and the details of noise control treatment for each compressor station have not been provided at this time, the noise impacts listed in Table 4-2 are estimates. However, the stations will be designed to limit the noise attributable to the operation of the compressors to 55 dBA during the day and 50 dBA during the night, which is the sound level that protects the public from interference and annoyance.

Operation of the pipeline would increase the private land area committed to long-term utility ROW uses by 787 acres. These commitments would not preclude the use of the ROW for existing annual and perennial crop use. Construction of permanent structures would not be allowed on the permanent ROW, which would limit future land uses for this purpose. The combination of the TransColorado ROW with existing parallel ROWs would preclude future building construction on an average of 12 percent of the area of each of 15 small land parcels (less than 20 acres). Preclusion of future development on land parcels larger than 20 acres would be much less on a percentage basis.

The pipeline construction and operation would affect several large lot subdivisions, one of which is Summit Ridge on the proposed route located northwest of Mancos in Colorado. Five large parcels ranging in size from 35 to 60 acres would be impacted. The pipeline alignment in this subdivision largely follows section/property lines and an existing dirt track road, which affords primary access to these lots. Impacts to these parcels would include the restriction of structural development on the 50-foot permanent ROW; impacts to visual resources in areas where trees must be removed; and social impacts associated with the intrusion of a pipeline on private property. The greatest impact would involve 6 percent (or 3.4 acres) of permanent ROW crossing the 60-acre parcel. The pipeline alignment crosses this parcel on its northern end, not along a road or property line. The pipeline ROW would leave approximately 94 percent of the parcel for development. A concern expressed by property owners is that future revenue would be lost if the pipeline made subdivision no longer feasible. The pipeline would not prohibit future subdivision of these parcels. Further impacts may include the periodic inspections and aerial overflights. Off-site impacts to the areas, such as the Summit Lake retirement community and residential areas near Summit and Puett reservoirs, are not anticipated as the area is extensively wooded, thereby providing screening of the pipeline ROW from viewsheds other than those of the adjacent properties.

During the scoping process and comment review, local residents expressed anger and concern that the presence of the TransColorado pipeline and its associated constraints and impacts would have a negative impact on land values, property resale values, and county revenues. The TransColorado proposed route would acquire a 50-foot easement on the 129 miles of private land. As long as the easement is valid, no structural development would be permitted on the 50-foot permanent ROW. Structural development refers to buildings, sheds, and other framed structures; it does not refer to fences, corrals, or irrigation equipment. The building restriction on the easement would be an adverse impact in light of existing or future structural development plans. In most cases this restriction is more of a conceptual or ethical impact as lot sizes are large enough to accommodate a pipeline without rendering the property "economically or functionally" obsolete. That is, the large majority of a parcel would be available for development.

Appraisal methods used to value land are based on objective characteristics of the property and any improvements. The impact the pipeline may have on the value of a tract of land depends on many factors, including its size, existence of other pipelines, the visual impact the line may have on the land, the current value of the land, and the current land use. Subjective valuation is generally not considered in appraisals. This is not to say that the pipeline would not impact resale values. A potential purchaser of a property would make a decision to purchase based on his or her planned use (e.g., agricultural, scenic, future subdivision, second home) of the property in question. If the pipeline renders the planned use infeasible,
it is possible that the potential purchaser would refuse the property. However, each potential purchaser has a different agenda and differing capabilities to purchase land. A literature review found no research to quantitatively describe the potential for diminished property value or estimate a standardized amount.

County revenues would be generated by the pipeline based on a tax rate figured by the county. This rate is independent of the type of land crossed (e.g., agricultural, industrial). The easement is effectively double-taxed; the pipeline company is taxed for the pipeline and the landowner is taxed for the ROW at the land use rate. When appraising the value of the land for property tax purposes, county appraisers do not

generally consider the existence of pipelines (Metcalf 1991; Goodman 1991; Johnson 1991; Kenton 1991). Therefore, the assessed value of the land neither increases nor decreases. Landowners have expressed dissatisfaction about paying property taxes on land that cannot be developed with structural improvements.

In 1984, at the request of the Boards of County Commissioners of La Plata County, Colorado, and San Juan County, New Mexico, a social impact assessment was completed on the lower Animas Valley with regard to a proposed pipeline. This assessment, conducted by Fort Lewis College (1984) in Durango, Colorado, studied a unique area; however, due to its proximity and social characteristics similar to the Proposed Action, it offers a review of social impacts that may parallel those of the Proposed Action.

The assessment concluded that local residents anticipated negative impacts and severe deterioration in their positive way of life. People who had been in the area a long time attached a very high intrinsic value to the natural environment and the ranching and farming way of life. Impacts claimed by these residents included a diminishing beauty, not always attached to a visual impact, but to the very presence of a pipeline. Encroachment, social disruption, and a loss of privacy as a foreign entity takes control of a portion of the resident's private property caused severe anger, as well as a feeling of helplessness. People often described the pipeline as a physical invasion of private property, describing it as a form of trespassing. Residents felt that traditional ways of life were threatened by the imposition of one or more pipelines.

Most area residents, including those who participated in the Animas Valley study, attended the TransColorado scoping meetings, and commented on the draft EIS, exhibited a fear of not being able to negotiate an adequate price for their land. People felt they would run the risk of further loss if they refused to lease because of the pressure of "eminent domain" laws. The eminent domain laws themselves caused anger and frustration.

Land owners located along the TransColorado route perceived economic impacts as limiting future opportunities to develop and/or change their properties. They believed that business ventures, future subdividing of land, and changing land uses would likely be inhibited by the presence of a pipeline. Many people expressed a fear that this would become a new pipeline corridor and that they would continue to lose lands to future development.

Tribal Lands

Construction of the proposed route along its current alignment would require crossing 0.25 mile of land owned by the Southern Ute Indian Tribe. This parcel of land is not currently held in Trust by the United States and, therefore, is not covered by the regulations and restrictions placed on Tribal land. According to the 25 CFR Part 151:

> Land not held in Trust or restricted status may only be acquired for an individual Indian or a Tribe in Trust status when such acquisition is authorized by an act of Congress. No acquisition of land in Trust status, including a transfer of land already held in Trust or restricted status, shall be valid unless the acquisition is approved by the Secretary.

Currently, this parcel is legally considered private property; however, the Tribe may file a request for Trust status. Factors considered by the Secretary in evaluating requests include:

- the existence of statutory authority;

- the Tribe's need for additional land;

- the purpose for which the land will be used;

- if the land to be acquired is in unrestricted fee status, the impact on the state and its political subdivisions resulting from the removal of the land from the tax rolls; and

- jurisdictional problems and potential conflicts of land use that may arise.

If Trust status is assigned to the parcel of Southern Ute land, TransColorado would be required to negotiate a crossing agreement with the Tribe. As an alternative, TransColorado has the option of constructing the pipeline in the ROW for Colorado State Highway 140. The 50- to 100-foot-wide ROW lies approximately 500 feet east of the current pipeline alignment. In discussions with the Colorado State Highway Department, construction of the pipeline in the highway ROW is feasible and permissible once the appropriate permits have been received (Hendrick 1992).

Natural Gas Markets and Pipeline Capacity

U.S. gas production from conventional reserves, and more recently from the coal seam and tight sands gas sources, has sparked a boom in gas production, resulting in a nationwide surplus. Drilling for coal seam and tight sands gases, termed unconventional reserves, has been accelerated due to the Federal drilling tax credits, which are mandated by the U.S. Congress through 1992. The current U.S. surplus of gas resources coupled with the tax credits for coalbed methane and tight sands gas, which act as an incentive to continue production, have caused persistent low prices on the gas markets. Tax credit opponents, according to *Oil and Gas Journal* (October 14, 1991), claim that with the continued drilling for unconventional gas, companies are shutting in their conventional gas resources.

Coal seam gas drilling has been especially active in the San Juan Basin in both New Mexico and Colorado and has resulted in a localized gas surplus, causing overloaded conditions in interstate pipelines transporting gas out of the San Juan Basin. In 1990 and 1991, several of the interstate pipelines carrying gas out of the San Juan Basin were operating at capacity. In discussions with the BLM, El Paso Natural Gas Company (El Paso) representatives stated that a pipeline is never constructed to transport maximum deliverability from a gas field, and that a pipeline built smaller than the maximum deliverability of a field results in a better economic return to the pipeline company over the life of a field. El Paso, along with Transwestern Pipeline Company (TransWestern), is expanding capacity in its interstate lines and expects the additional capacity to be operational in 1992.

The proposed TransColorado gas transmission pipeline would transport conventional gas and coalbed methane from the Piceance, Paradox, and Uintah gas producing basins into the San Juan Basin. As discussed previously, TransColorado's purpose for moving natural gas into the San Juan Basin is to access interstate pipelines for ultimate shipment to West Coast and eastern markets. The Southern Ute Indian Tribe, however, claims that if the TransColorado pipeline becomes operational, the regional gas surplus (as estimated by the Southern Utes) would increase by 30 percent, causing the Tribe to lose approximately $1.3 million in gas royalty revenue. The Southern Utes claim that the increasing gas production in the basin, the proposed gas to be transported in the basin on TransColorado, and the growing pipeline capacity shortfall to ship the gas out of the region will cause Tribal well shut-ins and loss of production revenue.

In response to this concern over pipeline capacity constraints, KNEnergy (joint holder in TransColorado) and the Southern Ute Tribe submitted gas production reports to the BLM.

The BLM then prepared a *San Juan Basin Gas Pipeline Analysis* (BLM 1991a) with respect to the submitted documents. The following is an overview of the BLM analysis.

The projected gas production and pipeline capacities constraints, as represented in the KNEnergy and Southern Ute reports, are illustrated in Figure 4-6. This illustration represents the various estimates of 1993 gas production purported by KNEnergy, the Southern Utes, and the New Mexico Oil and Gas Commission. The largest variations in the estimates are exhibited in the predictions of conventional gas and coalbed methane. The total 1993 gas production, and the estimated gas transported to the San Juan Basin, ranges between 3.0 billion cubic feet per day (BCFD) (KNEnergy) and 3.8 BCFD (Southern Utes) without inclusion of TransColorado, and from 3.3 BCFD to 4.1 BCFD with the inclusion of TransColorado gas. Conversely, Figure 4-6 illustrates the estimated transportation capacity out of the San Juan Basin, given the expansion plans by both El Paso and TransWestern. The KNEnergy and Southern Ute capacity estimates differ slightly, from 3.0 BCFD to 3.3 BCFD, respectively.

The KNEnergy and Southern Ute reports both indicate that in 1993, the initially estimated first year of operation of the proposed TransColorado pipeline, there would continue to be a capacity shortfall on pipelines carrying gas out of the region. For pipeline transportation companies, this is a desirable situation; for gas producers, it is not. Figure 4-6 represents that the surplus of San Juan Basin natural gas (for which there will be no pipeline capacity in 1993) would be between .185 BCFD (KNEnergy) and .899 BCFD (Southern Utes) with the TransColorado incoming gas volumes factored into the equation. The Southern Utes maintain that there would be a capacity constraint of .599 BCFD in 1993, even without TransColorado.

The TransColorado gas transmission line would increase competition among gas producers both in the basin and on a national level. This increased level of competition would result in some producers, with gas priced higher than TransColorado's transported products, experiencing decreased sales, decreased revenue and potentially shutting-in of their gas wells. The gas produced by the Southern Utes is subject to a royalty tax varying from 12.5 to 25 percent and a severance tax of 6.5 percent on the market value of gas (Tribal Ordinance 89-91), as well as the severance tax imposed by the state. The Southern Ute gas is typically more expensive gas, particularly when compared to coalbed methane and tight sands, as produced under the tax credit (Section 29 of the Natural Gas Policy Act) and, as such, is more difficult to sell and compete for transport on the interstate pipelines. It is the Southern Utes' perspective that the expected 1993 capacity shortfall, coupled with the incoming gas transported by the TransColorado pipeline, would in effect result in the shut-out of Indian gas and, therefore, revenue loss. This shut-out effect would not be limited to the Southern Ute Tribe but would impact other gas producers as well.

According to the BLM's analysis (BLM 1991a) of the surplus issue, the Southern Utes accounted for 6 percent of the production in the San Juan Basin in 1990. In 1993, this would amount to .194 BCFD (based on the Tribe's report) or .160 BCFD (based on KNEnergy's report). TransColorado would add .300 BCFD to the surplus, according to the Southern Ute report. If it is assumed that TransColorado contributes .300 BCFD to the surplus and this amount is distributed among the various mineral interest owners according to the proportionate share of 1990 production, then the Tribe's share of the TransColorado-generated surplus would be 18 MMcfd (.018 BCFD), or 9 percent of the Tribe's 1993 estimated gas production.

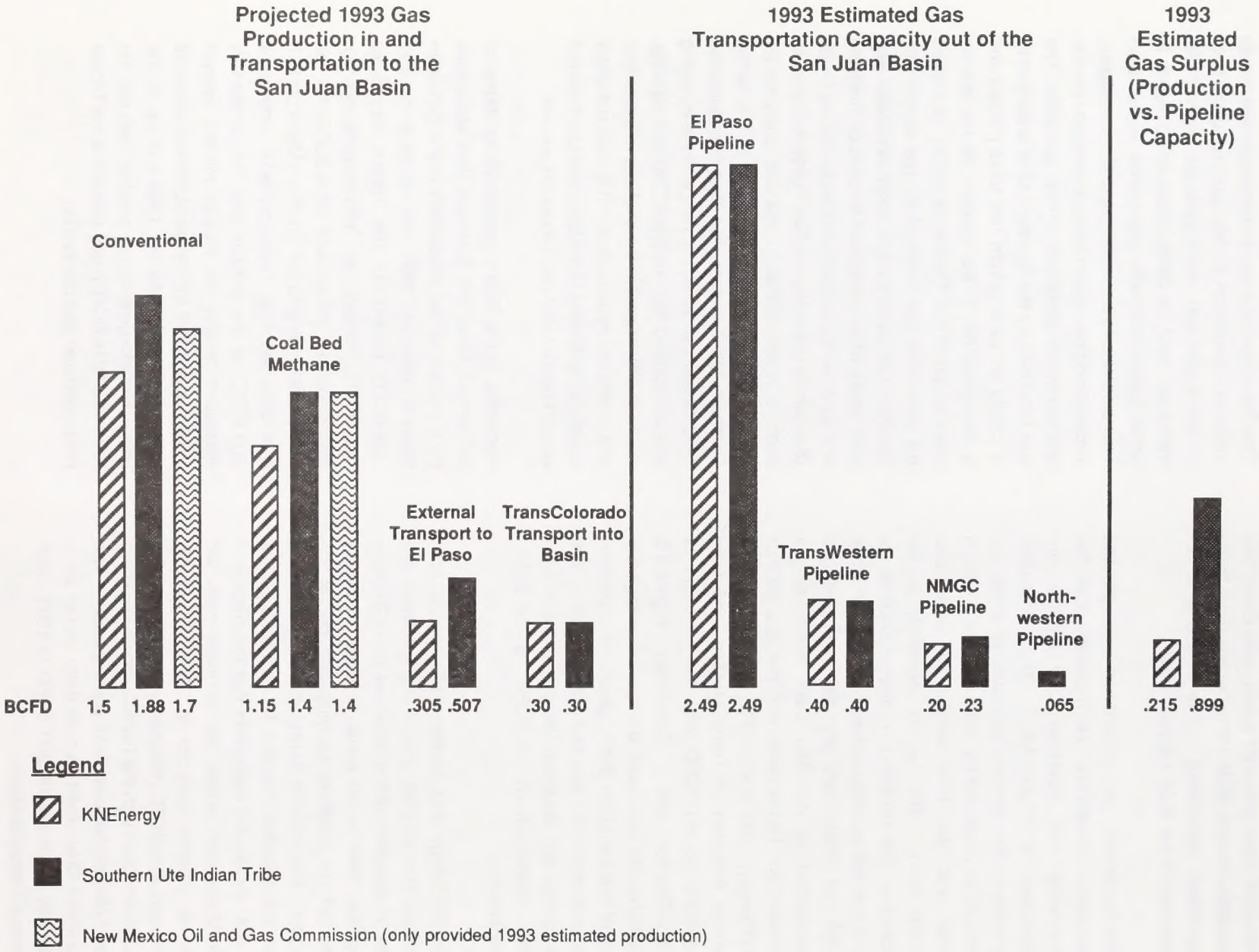


Figure 4-6. 1993 Natural Gas Production and Transportation - San Juan Basin

BLM's review (BLM 1991a) of the issue of transportation capacity shortfalls concluded with the following points:

- There is no doubt that the influx of gas through the TransColorado pipeline into the San Juan Basin will increase market pressure among basin gas producers to lower prices to get their gas purchased.

- The different estimates of coalbed methane production, and therefore, the amount of surplus gas that will be available for market in the basin offered by KNEnergy and the Tribe are equally valid, and just as valid as any third set of numbers that anyone would care to develop. Estimates of coalbed methane production from the basin in 1993 are purely speculative.
- The amount and origin of the gas that leaves the basin is a function of the market at the end of the pipelines leaving the basin. How much gas and whose gas goes into the pipelines leaving the basin are not functions of pipeline capacity. This is true at the present and will be true even if the TransColorado pipeline is built.

- Pipeline companies underbuild pipeline capacity to ensure a reasonable lifetime of the pipeline. This is good economics for the pipeline companies, who would prefer that there is always a surplus of gas; that means the pipeline will always be full.

- Assuming that any gas surplus is shared proportionally among the basin's mineral interest owners, Federal, state, and private operators can reasonably be expected to bear a greater percentage of the estimated surplus of gas available for market in 1993, than would the Southern Ute Indian Tribe.

The Trust Responsibility between the U.S. and the various North American Indian Tribes was described in Chapter 1. This responsibility requires that the U.S. manage Indian Trust lands with care and that the Federal government deal fairly with all Indians. The BLM's Trust Responsibility to the Southern Utes, in this case, is to ensure that the Tribe has the opportunity to compete fairly in the marketplace. The Trust Responsibility does not, however, guarantee the Tribe a monopoly nor a market advantage. Approval to construct the TransColorado pipeline would not singularly, unfairly, nor unjustly inhibit Southern Ute competition in the U.S. natural gas markets; the Trust Responsibility between the Secretary of the Interior and the Southern Ute Indians would not be violated.

Conclusion. Crop production would be precluded on 273 acres for 2 years. Construction activities will result in employment of approximately 360 local workers and local expenditures of $5.8 million by local and non-local workers. Rental housing, motel/hotel, and RV accommodations for the construction labor force might not be adequate during the summer.

Operation of the pipeline would yield approximately $4.2 million in first-year property taxes, and $10,000 in ROW fees would be paid to Federal agencies for the first year. Based on current valuations, the annualized value of timber, fuel wood, and livestock forage removed from the ROW would represent approximately 11 percent of the annual Federal ROW fees. The value of crop production precluded on 273 acres for 2 years is estimated to be $44,800. Approximately 20 persons would be employed as operational staff. Payroll for this staff would result in local expenditures of approximately $219,000 annually for goods and services. Operation of the pipeline would increase the private land area committed to long-term utility uses by 787 acres. The combination of the TransColorado ROW with existing parallel ROWs would preclude installation of buildings on an average of 12 percent of each of 15 land parcels crossed by the pipeline ROW.

Each of the 15 parcels crossed is less than 20 acres in size.

TransColorado would negotiate an agreement to cross the 0.25 mile length of land recently acquired by the Southern Ute Indian Tribe. If such an agreement is not possible, TransColorado may realign the route approximately 500 feet to the east in the Colorado State Highway 140 ROW.

The Southern Utes, along with other San Juan Basin gas producers, would experience increased competition for sales of natural gas if the TransColorado pipeline were built. However, the extent to which this increased competition would affect sales is difficult to quantify because of uncertainties in estimating available gas supplies, future market prices, and future changes in pipeline capacity. Approval to construct the TransColorado pipeline would not singularly, unfairly, nor unjustly inhibit Southern Ute competition in the U.S. natural gas markets; the Trust Responsibility between the Secretary of the Interior and the Southern Ute Indians would not be violated.

Impacts to Public Safety

The transportation of natural gas by pipeline involves some degree of risk to the public in the event of an accident and subsequent release of natural gas. The greatest hazard is the possibility of fire or explosion following a major pipeline rupture. In case of fire caused by a natural gas leak or rupture, the pipeline company would be responsible for shutting off the supply of natural gas to the leaking section of pipeline. Once the leaking pipeline section is isolated, the leak or fire would be allowed to empty or burn itself out. Local fire departments would be responsible only for controlling the spread of secondary fires to any dwellings, structures, and property in the general area at risk.

In the event of a pipeline leak or rupture, an unquantifiable amount of pressurized natural gas (methane) would be released from the pipeline. Methane disperses readily in air, and is not likely to asphyxiate anyone nearby. Methane is highly flammable. If released gas is ignited, the released gas will continue to burn until the pipeline is shut down. TransColorado anticipates that the response time to manually operated block valves would be approximately 0.5 to 1.0 hour during summer months. During winter or adverse weather conditions, emergency response times would be 1 to 1.5 hours. As a consequence, a pipeline natural gas fire would likely burn 1 to several hours prior to control. The potential for a fire to spread would depend upon the combustible fuels nearby and the time of year.

Beginning in February 1970, 49 CFR Part 191 required all operators of transmission and gathering systems to notify the U.S. Department of Transportation (DOT) of specific types of incidents that occurred during operation of the approximately 300,000 miles of natural gas transmission and gathering systems nationwide. The number of failures during the 14-year period, from February 1970 through June 1984, remained fairly constant, with no upward or downward trends. Slightly more than half of the operational failures were caused by outside forces, defined as the encroachment of mechanical equipment, such as bulldozers and backhoes; from earth movements, such as washouts or geologic hazards; from weather effects, such as winds, storms, and thermal strains; and from willful damage. An analysis of the outside forces causing pipeline failures indicates that human error in equipment usage accounts for approximately 75 percent of all such incidents.

The frequency of failure during operation is strongly dependent on pipeline age, with pipelines installed prior to 1950 exhibiting a significantly higher incidence of failure. Older pipelines have a higher frequency of corrosion, since corrosion

is a time-dependent process, and new pipe generally has more advanced coatings and cathodic protection to reduce corrosion potential. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, significantly reduces the rate of failure over unprotected or partially protected pipe. Older pipelines also have a higher frequency of incidents caused by outside forces, in part because they may be less well marked and, in part, because older pipelines tend to be of a smaller diameter and are more easily crushed or broken by mechanical equipment or earth movement.

The average number of non-employees killed in gas transmission and gathering line accidents per year is 2.5 (based on 1970-1984 data). This translates to a public fatality rate of 0.008 per 1,000 miles of transmission and gathering lines per year for the entire national network. Application of the industry-wide average to the total of 306 miles of pipeline for the proposed route yields a recurrence interval of 1 fatality every 410 years. The proposed pipeline expansion would cause only a slight increase in risk to the nearby public.

TransColorado has prepared an emergency response plan that will be followed in the event of spills or leaks.

Conclusion. Operation of the pipeline would result in an estimated fatality rate of 1 death for every 410 years of operation, based on the incident rates reported for the entire U.S. for the 1970-1984 period.

AGENCY PREFERRED ALTERNATIVE

Impacts associated with the Agency Preferred Alternative are discussed in terms of any differences to the Proposed Action. Specific impacts for each resource discipline are described below.

Impacts to Air Quality and Noise

Construction

Construction impacts to air quality would be the same as those described under the Proposed Action except for a minor decrease in construction emissions due to the shorter (207 days) construction period. Since the length of the route would decrease by 16 miles, a 6 percent proportional reduction in fugitive dust and equipment emissions would be expected. Occupants of 40 residences would be exposed to a short-term (2 to 3 weeks) increase in pipeline construction, spread-related noise and fugitive dust during daylight hours.

Operation

Table 4-4 provides a summary of the maximum concentrations of CO and NO_2 at the various compressor stations expressed in $\mu g/m^3$. All predicted concentrations are well below their respective NAAQS using EPA predictive modeling techniques (EPA 1987). These modeling techniques incorporate several conservative assumptions; actual concentrations would be less than the values calculated.

Operational impacts to air quality would be similar to those described under the Proposed Action except the Dolores Alternate 1 compressor station (which would be substituted for the Proposed Action Dolores Alternate 2 compressor station) would have slightly higher predicted short-term CO concentrations because of higher overall hp requirements. Similarly, substitution of the Rocky Mountain-Redvale for Rocky Mountain-Big Gypsum compressor station would result in increased CO and NO_2 impacts near the compressor station, but the expected air pollutant concentrations would remain well below applicable air quality standards. The maximum project-related ground level NO_2 concentration at the Rocky Mountain-Redvale site would be twice that described under the Proposed Action due to higher hp requirements (Tables 2-6 and 2-11, Chapter 2). Although these pollutants would increase, the expected concentrations would be well below applicable air quality standards.

Impacts to PSD Class I and II NO_2 increments and impacts predicted at NPS administered areas would be similar to impacts predicted under the Proposed Action. The greatest predicted incremental impact would be less than 0.060 $\mu g/m^3$ at Mesa Verde National Park from operation of the Dolores Alternate 1 compressor station. This impact is greater than that described under the Proposed Action (due to higher emission rates), and represents less than 3 percent of the 2.5 $\mu g/m^3$ PSD Class I NO_2 increment. Although this predicted concentration is well below the Class I Increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS.

Based on these predicted NO_2 concentrations, annual Nitrate deposition was estimated to be 0.01 kg/hectare-year for the Dolores Alternate 1 compressor station. This estimated deposition rate represents 0.2 percent of the background deposition rate of 5 kg/hectare-year. The effects on park soils, vegetation, and cultural resources from this level of atmospheric deposition have not been quantified. It is possible that additional NO_3 could increase the growth rates and respiration of soil microorganisms, and that vegetation could grow at a faster rate. Deposition at other NPS areas would be lower. An analysis of plume

Table 4-4

TransColorado Gas Transmission Project
Predicted Air Quality Impacts ($\mu g/m^3$)
Agency Preferred Alternative

			Class II		Class I			NAAQS[1]		
Compressor	Pollutant	Avg. Time	Source Impact	Increment	Name	Source Impact	Increment	Background	Total Impact	Standard
Questar-Piceance[3]	NO_2	Annual	23.1[A]	25	Dinosaur NM	<0.031[D]	--	4	27	100
	CO	1-hour	142.6[B]	--	--	--	--	2,500	2,643	40,000
	CO	8-hour	47.6[C]	--	--	--	--	1,250	1,298	10,000
WestGas-Meeker	NO_2	Annual	18.3[A]	25	--	--	--	4	22	100
	CO	1-hour	266.5[A]	--	--	--	--	2,500	2,767	40,000
	CO	8-hour	186.5[A]	--	--	--	--	1,250	1,437	10,000
Rocky Mountain-DeBeque[4]	NO_2	Annual	44.0[A]	25	--	--	--	4	48	100
	CO	1-hour	56.0[A]	--	--	--	--	2,500	2,556	40,000
	CO	8-hour	39.2[A]	--	--	--	--	1,250	1,289	10,000
WestGas-DeBeque	NO_2	Annual	8.8[A]	25	--	--	--	4	13	100
	CO	1-hour	141.9[A]	--	--	--	--	2,500	2,642	40,000
	CO	8-hour	99.3[A]	--	--	--	--	1,250	1,349	10,000
TransColorado-Olathe[3]	NO_2	Annual	21.1[D]	25	Black Canyon	<0.017[D]	2.5	6	27	100
	CO	1-hour	1,316.2[B]	--	Wilderness	--	--	2,500	3,816	40,000
	CO	8-hour	-213.0[B]	--	--	--	--	1,250	1,463	10,000
Rocky Mountain-Redvale	NO_2	Annual	10.1[E]	25	--	--	--	4	14	100
	CO	1-hour	9.3[E]	--	--	--	--	2,500	2,509	40,000
	CO	8-hour	6.5[E]	--	--	--	--	1,250	1,257	10,000
Dolores Alt 1[3]	NO_2	Annual	24.3[D]	25	Mesa VerdeNP	<0.060[D]	2.5	4	28	100
	CO	1-hour	1,664.1[B]	--	--	--	--	2,500	4,164	40,000
	CO	8-hour	663.0[B]	--	--	--	--	1,250	1,913	10,000

Note: Modeling results incorporate several conservative assumptions; actual concentrations would be less than values calculated.

[1]NAAQS - National Ambient Air Quality Standards

[2]NO_2 - nitrogen dioxide; CO - carbon monoxide; Concentrations of particulate matter, sulfur dioxide, lead, and ozone would be minimal (below significant levels).

[3]Source: Trinity Consultants, Inc., (1992) and Hoffman (1992).

[4]Rocky Mtn. - DeBeque is an existing compressor station consisting of two 600 hp reciprocating engines, to which two additional 600 hp reciprocating engines would be added. One-half of the reported impacts would result from the additional compressors. Since the addition to the existing Rocky Mountain-DeBeque is not a "major modification," the facility would not be required to obtain a Prevention of Significant Deterioration permit. Increment consumption values are presented for State of Colorado increment tracking purposes.

EPA predictive models used (EPA 1987):

A COMPLEX I - an EPA modification to the Multiple Point Gaussian Dispersion algorithm with Terrain Adjustment (MPTER) model.

B ISCST - Industrial Source Complex (Short-Term) model for averaging periods 24 hours and less.

C VALLEY - initial screening application of the COMPLEX I model for complex terrain.

D ISCLT - Industrial Source Complex (Long-Term) model for monthly, seasonal and annual averaging periods.

E SCREEN - initial screening model that assumes simple terrain.

visibility impacts is summarized in Appendix H; none of the proposed compressor station emission plumes has the potential to be perceptible under "reasonable worst case" conditions (EPA 1988).

The predicted noise impacts listed in Table 4-5 are estimates because the noise levels used to predict the impact of the compressor stations on nearby noise-sensitive areas are based on unspecified engine units and because the noise control methods for each compressor station have not been determined at this time. The Dolores Alternate 1 compressor station showed potential to exceed applicable standards. However, the stations would be designed to limit the compressor noise at all residences to 50 dBA at night (7:00 p.m. to 7:00 a.m.) and 55 dBA during the day, which are the sound levels that would protect the public from interference and annoyance.

Conclusion. Fuel combustion by pipeline construction equipment would increase the emissions of CO, NO_x, unburned hydrocarbons, and particulate matter (especially fugitive dust) for the short term along 1.4 pipeline miles per day for an estimated 207 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of seven compressor sites. The daily fuel combustion emissions per mile from these activities are estimated to be equivalent to those emitted from a typical major urban street. Occupants of 40 residences would be exposed to a short-term (2 to 3 weeks) increase in pipeline construction, spread-related noise and fugitive dust.

Operation of seven compressor stations would increase the local (within 1 mile) concentrations of CO and NO_2. The maximum estimated increases would range from 10 to 19 percent of the allowable 1-hour and 8-hour CO concentrations, respectively. Maximum estimated NO_2 concentrations would be 11 times the annual average background level. No pollutant concentration would exceed 50 percent of the NAAQS. Although not subject to PSD permitting, the combined (existing and additional) Rocky Mountain-DeBeque compressor station shows a potential impact of 44.0 $\mu g/m^3$, which exceeds the PSD Class II NO_2 increment of 25 $\mu g/m^3$. Based on future review by the permitting authority, if an increment violation is expected to occur, the station would not be approved for construction. A plume visibility screening analysis indicates that operation of compressor stations under the Agency Preferred Alternative would not be perceptible at Dinosaur National Monument, Black Canyon of the Gunnison National Monument, or at Mesa Verde National Park.

Maximum project-related NO_2 concentrations over NPS administered lands would be less than 0.038 $\mu g/m^3$. Although this predicted concentration is well below (less than 2 percent) the applicable PSD Class I NO_2 increment, the NPS has expressed concerns regarding potential impacts to ecosystems managed by the NPS.

Compression stations would be designed to limit operational noise to 50 dBA at all occupied residences between 7:00 pm and 7:00 am, and 55 dBA during the day.

Impacts to Topography

Implementation of this alternative would cause no impacts to natural slope contours.

Conclusion. Natural slope contours would be changed on 0 acres.

Impacts to Leasable Minerals

Impacts to leasable mineral access would be the same as those described under the Proposed Action. Construction of the TransColorado pipeline is expected to create a stimulus for construction of gas gathering pipeline systems

Table 4-5

TransColorado Gas Transmission Project
Compressor Station Noise Impacts at Nearest Sensitive Receptors
Agency Preferred Alternative

			Receptor 1[1]		Receptor 2[1]		Receptor 3[1]	
Compressor Station	Location	Total HP	Range (ft)	Noise Level (dBA)[3]	Range (ft)	Noise Level (dBA)[3]	Range (ft)	Noise Level (dBA)[3]
Questar-Piceance[2]	Rio Blanco County	12,390	N/A	N/A	N/A	N/A	N/A	N/A
WestGas-Meeker	Rio Blanco County	2,700	1,800	49.8	2,600	46.7	3,400	44.3
Rocky Mountain-DeBeque	Garfield County	2,400	4,700	41.5	4,800	41.3	–	–
WestGas-DeBeque	Mesa County	2,700	1,900	49.4	2,800	46.0	3,300	44.6
TransColorado-Olathe[2]	Montrose County	4,750	N/A	N/A	N/A	N/A	N/A	N/A
Rocky Mountain-Redvale[2]	Montrose County	800	N/A	N/A	N/A	N/A	N/A	N/A
Dolores Alternate 1	Dolores County	5,400	1,050	50.5	4,500	37.9	4,500	37.9

Note: All horsepower are nominal ratings, which reflect routine operating conditions.

[1]Receptors are numbered by proximity to the compressor station.

[2]There were no known sensitive receptors identified within a 1-mile radius of the Piceance, Olathe, or Redvale compressor sites.

[3]Day-night average sound levels (L_{dn}). Estimates based on manufacturer's data for a 6,200 hp unit with an Equivalent Sound Level (L_{dn}) of 55 dBA at 300 feet.

and additional drilling to the same extent as the Proposed Action because the TransColorado pipeline volume shipped from the Piceance Basin (approximately 101 bcf per year) is the same for both alternatives.

Conclusion. No potential conflicts with oil and gas development and active oil shale leases were identified. Construction of the pipeline could cause future conflicts with mining operations on 2.25 square miles of underlying coal that could be surface-mined, and on 9.25 square miles of underlying oil shale potentially yielding 25 gallons per ton.

Construction of the TransColorado pipeline would provide transportation capacity that is approximately 2.5 times the present natural gas volumes sold from Piceance Basin sources. This capacity increase is expected to stimulate construction of gathering pipeline systems to connect with shut-in wells, and additional drilling in the Piceance Basin region.

Impacts to Mineral Materials

Impacts to mineral materials are the same as those described under the Proposed Action.

Conclusion. No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to an estimated 55 acres of unleased or privately owned mineral materials.

Impacts to Surface Water Quality

Impacts to surface water quality would be the same as those described under the Proposed Action except that one less major stream would be crossed by this alternative, increases in salinity in the Colorado River would be 9 tons less per year (23 tons as opposed to 32 tons under the Proposed Action), and suspended sediment increases would be 2 tons less per day (7 tons as opposed to 9 tons under the Proposed Action) at the Dolores River crossing.

Conclusion. Trenching, pipe laying, and backfilling in 5 major rivers, 5 major streams, and 21 minor perennial streams would increase suspended sediment from several days to 2 weeks during and subsequent to the pipeline installation period. Salinity increases in the Colorado River would be 23 tons per acre per year (maximum) for a 1- to 2-year period. Maximum suspended sediment increases (4 percent of daily mean sediment yield) from trenching are expected at La Plata River crossings.

Impacts to Municipal Watersheds and Water Supplies

Impacts to municipal watersheds would be the same as those described under the Proposed Action.

Conclusion. Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed and 43 acres in the Grand Junction watershed would slightly increase soil erosion, and slightly decrease the permeability of the ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes in both Palisade and Grand Junction municipal watersheds. Trenching across the Dolores and Animas Rivers would slightly increase suspended sediment at the Dolores municipal water treatment plant intake and at the Aztec alternate intake for a period of several days to several weeks.

Impacts to Bureau of Reclamation Water Projects

Impacts to Bureau of Reclamation (BuRec) water projects would be the same as those described for the proposed route.

Conclusion: Based on TransColorado's commitment to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.

Impacts to Wetlands

Impacts to wetlands would be the same as those described under the Proposed Action except for changes in disturbance to shrub wetland vegetation. This alternative would result in 1 less disturbed acre of shrub wetlands. Appendix C, Table C-2 lists stream and wetlands crossings for the agency preferred route.

Conclusion. Pipeline construction would decrease herbaceous vegetation cover on 14 acres of wet meadows/haylands for the short term; decrease shrub species cover on 1 acre of shrub wetlands for the long term, and decrease shrub and tree cover on 14 acres of forested wetlands for the long term. Much less than 1 percent of the wetland in any watershed would be disturbed by pipeline construction.

Impacts to Soils

Impacts to soils would be the same as those described under the Proposed Action except the total disturbance would decrease by 172 acres, areas of saline/alkaline soils would decrease by 145 acres (decreasing salinity by 9 tons per year), steep ascent/descent slopes (15 percent or greater) would decrease by 78 acres, and shallow/rocky soils would decrease by 56 acres.

Conclusion. Construction would increase soil erosion for the short term, generally stabilizing to preconstruction levels within 1 to 5 years. Some increased erosion would be expected on the entire 2,693 acres. On areas of saline/alkaline soils (382 acres), steep (greater than 15 percent) slopes (258 acres), or shallow/rocky soils (1,034 acres), revegetation may be more difficult. Over the long term, wind and water erosion losses would not be expected to exceed those presently occurring on adjacent, undisturbed soils.

Impacts to Prime and Unique Farmlands

Impacts would be the same as those described under the Proposed Action except that prime farmland disturbance would decrease by 2 acres, and 2 more acres of farmland of statewide importance would be disturbed.

Conclusion. Pipeline construction would decrease production on 80 acres of prime farmland and 111 acres of farmland of statewide importance. A fraction of 1 percent of the farmlands in any county crossed by the pipeline would be taken out of production for two growing seasons.

Impacts to Forestry

Impacts would be the same as those described under the Proposed Action except 56 fewer acres of timber lands would be disturbed and 98 fewer acres of pinyon-juniper woodlands would be disturbed. These would be long-term impacts.

Conclusion. Pipeline construction would remove conifer and aspen timber resources and pinyon-juniper fuel wood/fencepost resources from 745 acres. These would be long-term impacts equal to approximately 10 percent of the annual timber, firewood, and fencepost harvest from adjacent public lands (1990 harvest).

Impacts to Livestock Grazing

Impacts would be the same as those described under the Proposed Action except that 12 fewer AUMs would be reduced over the short term.

Conclusion. Pipeline construction would decrease AUMs by 226 but would not reduce stocking rates in any allotments crossed.

Impacts to Wildlife

Impacts would be same as those described under the Proposed Action except that 263 fewer acres of key deer range, 362 fewer acres of key elk range, and 25 fewer acres of sage grouse breeding/nesting habitat would be disturbed. The agency preferred route would parallel 2 fewer miles of existing corridors through key elk range and 11 fewer miles of existing corridors through key mule deer range than the proposed route.

Conclusion. Construction disturbance would decrease less than 1 percent of the surrounding key game ranges and vegetation types and would displace an unquantifiable number of animals. No regional population declines would result from pipeline construction for any species. A local population decline could occur for sage grouse utilizing the two leks that would be disturbed by construction activities.

Impacts to Fisheries

Impacts would be the same as those described under the Proposed Action.

Conclusion. Pipeline construction would result in short-term increases in sedimentation and short-term losses of streambed substrate and biota in 15 Class I cold water rivers and streams and 16 Class II rivers and streams (see Appendix C, Table C-2). The streambed disturbance would result in very limited fish mortality and no loss of fishery quality or recreational opportunities.

Impacts to Threatened and Endangered Species

This section analyzes impacts to species listed under the Endangered Species Act, candidates for listing under the Act, and those proposed for listing under the Act. It also analyzes impacts to those species listed as endangered or threatened under state laws.

A draft BA (ENSR 1992) has been completed for that portion of the agency preferred route that has been field inventoried. The draft BA analyzes impacts to federal threatened, endangered, candidate, and proposed species, identified by the USFWS (USFWS 1991). The BA incorporates information from species experts, literature, and field surveys which were completed along the agency preferred route. Based on the draft BA, the USFWS has issued a draft BO giving a preliminary non-jeopardy opinion for the species that may be affected along that portion of the agency preferred route that has been field surveyed. The draft BO is included in Appendix E. As identified in the draft BA, surveys for rare plants, black-footed ferrets, Mexican spotted owls, and nesting raptors have not been completed for all variations of the agency preferred route. The final BA will be prepared for the route selected for construction, after all required surveys have been completed, and will address impacts to Federal endangered, threatened, candidate and proposed species. The final BA will be submitted to the USFWS, and a final BO received from the USFWS, thereby completing Endangered Species Act Section 7 consultation, prior to BLM/USFS making a decision and issuing RODs on the project. The final BO will be included in the RODs.

The draft BA and draft BO are the basis for this impact analysis.

Animals

Impacts to southwestern willow flycatchers would be the same as those described for the proposed route, except that one less acre of wetland shrub habitat would be disturbed.

The potential impacts to Mexican spotted owls, wintering bald eagles, and river otters would be the same as described for the proposed alternative.

Impacts to listed and candidate fish would be the same as those described for the proposed route.

Potential impacts to black-footed ferrets would be identical to those described for the proposed route. This route has the potential to impact fewer acres of prairie dog colonies, resulting in a lower potential for impact to ferrets.

Impacts from emergency response actions would be the same as described for the proposed route, except that there is no potential to impact any nesting bald eagles.

Conclusion. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered species. The likelihood that emergency response actions would disturb threatened and endangered species during crucial periods is very low.

Plants

Impacts to threatened and endangered species would be the same as those described for the proposed action. The exception would be that the potential rare plant habitat present between Redvale and the Montezuma-Dolores county line would not be affected.

Conclusion. Compliance with the environmental protection measures included in Chapter 2 would ensure protection of threatened and endangered species. Twenty individuals of Uinta Basin hookless cactus and 350 individuals of DeBeque milkvetch would be removed by construction activities. The likelihood that emergency response actions would impact rare plant populations is very low.

Impacts to Cultural Resources

The cultural resource impacts for the Agency Preferred Alternative are based on the following: 1) A partial Class III inventory of the final EIS agency preferred route which estimates that approximately 15 percent of NRHP-eligible sites can be avoided, and 2) projections that a similar number of sites will be found along the final EIS agency preferred route once it is fully inventoried, and 3) the proposed cultural resource treatment plan (Appendix F).

Conclusion. Assuming approximately 15 percent of the NRHP-eligible sites could be avoided and approximately 30 percent of the remaining eligible sites would be excavated, approximately 55 percent of all NRHP-eligible sites could be partially destroyed by construction activities.

Impacts to Native American Religious Values

Pipeline construction disturbance could reduce the value of Native American traditional use or religious areas that may be present on or near the ROW. No Native American traditional use areas are known at this time. The BLM will continue to coordinate efforts with the affected tribes to identify these areas and assure their protection.

Conclusion. No Native American traditional use or religious areas are known at this time.

Impacts to Paleontological Resources

Impacts to paleontological resources would be the same as those described under the Proposed Action.

Conclusion: An undetermined number of fossils in the Class I paleontological localities would be excavated and would not be destroyed by construction activities. An undetermined number of fossils would be left in place and could be partially or totally destroyed by construction activities. Information about these sites would be disseminated to the scientific community.

Impacts to Visual Resources

Impacts would be the same as those described under the Proposed Action with the following exceptions:

A total of 26 locations along the agency preferred route would have potential for high visual impacts (see Table G-1 in Appendix G) prior to application of environmental protection measures listed in Tables 2-12, 2-13, and 2-14. Following application of environmental protection measures, 12 locations would receive high visual impacts; however, the locations would be different in some cases:

High Visual Impact Areas

Compressor Stations

The same three compressor stations identified under the Proposed Action and the Dolores Alternate 1 compressor station would result in high visual impacts.

1. Dolores Alternate 1 Compressor Station (MP 208). This station would be visible from USFS Road 526. The site would create high contrast with the surrounding undeveloped and partially forested landscape.

Pipeline Crossing

Five of the locations identified under the Agency Preferred Alternative would receive high visual impacts:

1. Roubideau Creek (MP 113 to MP 114)
2. San Miguel River (MP 153.0 to MP 154.4)
3. East of the West Mancos River (MP 225.4 to MP 225.8)
4. Highway 140 south of Redmesa (MP 254.3 to MP 255.2)
5. East of Highway 170 (MP 260.8 to MP 261.2)

In addition to these locations, three new locations along the agency preferred route would receive high visual impacts:

1. Norwood-Dolores Road (MP 181.0 to MP 182.6). This 1.6-mile segment would directly parallel the Norwood-Dolores Road for approximately half its distance before running directly up a relatively steep oak hillside where it would join an existing transmission line ROW. Because of its orientation up the hillside in direct and extended view to southbound travelers, the density of existing vegetation, and the width of the disturbance, this area would result in high visual impact in this sensitive area.

2. Belmear Mountain (MP 185.7 to MP 187.3). In this area, the pipeline would descend steep, exposed, and highly prominent slopes. In this area, a road and transmission line have already created highly visible scars on the hillside. The additional disturbance created by the 75-foot-wide TransColorado ROW would

add considerably to the existing contrast because it would be located in a third separate alignment. Because of its topographic prominence, this area is highly visible to large segments of the Norwood-Dolores Road (USFS Road 526).

3. Dolores River Crossing (MP 210.2 to MP 211.0). The crossing of the Dolores River Canyon would be visible from Highway 145, a designated state scenic byway, as it ascends the long, steep slopes on the east side of the canyon. This view would be particularly visible to the southbound travelers. Because of the orientation of the traveler, the prominence of the slopes, and the width of the cut through dense conifer and aspen woods, the pipeline would result in a high, long-term visual impact.

Three locations identified under the Proposed Action would not be within the agency preferred route and, therefore, would not be affected:

1. Dolores River (MP 225.2 to MP 230.2)
2. Millwood (MP 234.5 to MP 236.1)
3. West of the West Mancos River (MP 239.8 to MP 240.5)

Grand Mesa Area

The Grand Mesa area would be impacted as described under the Proposed Action.

Conclusion. Twenty-six locations along the agency preferred route have potential for high visual impact. Of the 26 locations, it was determined that by applying visual environmental protection measures, the high impact could be reduced to moderate or low in 14 locations. The remaining 12 locations would still result in a high (short- and long-term) visual impact on approximately 7.3 miles along the ROW at 8 locations and at 4 compressor stations. Some of the locations of the high visual impacts would be different from the proposed route. BLM VRM guidelines would be exceeded at the same three locations as for the proposed route, while USFS VQO guidelines would be exceeded at one location, the Dolores River crossing, which is only partially on National Forest System lands. The visual impact to the Grand Mesa would be low except for the most critical viewpoint from Whitewater, which would be moderate.

Impacts to Transportation

Impacts would be the same as those described under the Proposed Action except 16 fewer miles of ROW access roads would be improved.

Conclusion. Construction would result in possible short-term traffic delays during road crossings and would require the improvement or grading of 183 miles of dirt/gravel roads. Construction might damage dirt and graveled roads for the short term but not for the long term, as roads would be repaired.

Impacts to Solid Waste Facilities

Impacts would be the same as those described under the Proposed Action except that approximately 220 cubic yards less solid waste would be generated for the shorter agency preferred route.

Conclusion. An estimated 4,140 cubic yards of construction-related solid waste would be generated and disposed of in licensed landfills.

Impacts to Socioeconomic Conditions

Occupants of 2 fewer residences would be exposed to short-term (2 to 3 weeks) increases in pipeline construction spread-related noise and

fugitive dust. Crop production would be precluded on 7 fewer acres for 2 years.

Operation of the pipeline would yield approximately $0.15 million less in property taxes. Private land area committed to long-term utility uses would increase by 73 acres.

Conclusion. Crop production would be precluded on 266 acres for 2 years. Construction activities would result in employment of approximately 360 local workers and local expenditures of $5.8 million by local and non-local workers. Rental housing, motel/hotel, and RV accommodations for the construction labor force might not be adequate during the summer.

Operation of the pipeline would yield approximately $4.0 million in first-year property taxes, and $8,500 in ROW fees would be paid to Federal agencies for the first year. Based on current valuations, the annualized value of timber, fuel wood, and livestock forage removed from the ROW would represent approximately 11 percent of the annual Federal ROW fees. The value of crop production precluded on 266 acres for 2 years is estimated to be $43,624. Approximately 20 persons would be employed as operational staff. Payroll for this staff would result in local expenditures of approximately $219,000 annually for goods and services. Operation of the pipeline would increase the private land area committed to long-term utility uses by 860 acres. The combination of the TransColorado ROW with existing paralleled ROWs would preclude installation of buildings on an average of 12 percent of each of 15 land parcels crossed by the pipeline ROW. Each of the 15 parcels crossed is less than 20 acres in size.

TransColorado would negotiate an agreement to cross the 0.25-mile length of land recently acquired by the Southern Ute Indian Tribe. If such an agreement is not possible, TransColorado may realign the route approximately 500 feet to the east in the Colorado State Highway 140 ROW.

The Southern Utes would likely experience increased competition for natural gas sales of Tribal natural gas if the TransColorado pipeline were built. However, the extent to which this increased competition would affect natural gas sales is difficult to quantify because of uncertainties in estimating available gas supplies, future market prices, and future changes in pipeline capacity. Approval to construct the TransColorado pipeline would not singularly, unfairly, nor unjustly inhibit Southern Ute competition in the U.S. natural gas markets; the Trust Responsibility between the Secretary of the Interior and the Southern Ute Indians would not be violated.

Impacts to Public Safety

Fatality risk would be less than that estimated under the Proposed Action by a factor of 4 percent (12 miles shorter).

Conclusion. Operation of the pipeline would result in an estimated fatality rate of 1 death for every 426 years of operation, based on the incident rates for the entire U.S for 1970 to 1984 period.

NO ACTION ALTERNATIVE

If the TransColorado pipeline were not constructed, the identified short- and long-term impacts to: 1) natural resources (topography, soils, air, water, wildlife, fisheries); 2) resource uses including municipal water supplies, farmlands, livestock, forestry, leasable minerals, and mineral materials; 3) cultural resources; 4) visual resources; 5) transportation; and 6) solid waste facilities would not occur along the identified pipeline routes or variations.

If the TransColorado pipeline were not constructed, the surface disturbance associated with the cumulative projects would still occur (see Cumulative Impacts). If TransColorado were not built, the cumulative project surface disturbance would be decreased from approximately 32,800 acres to 30,000 acres.

If TransColorado were not constructed, some gas suppliers in the Piceance Basin would not be able to interconnect to a gas transmission line to transport natural gas to market. It is anticipated that TransColorado supplier wells would remain shut-in, until such new transportation facilities are provided or wells were produced to maintain existing pipeline capacity. Alternative gas transportation projects (Colorado Interstate Gas Uinta Basin Lateral, Questar Main Line No. 58 Upgrade) have recently been proposed that would transport gas from the Piceance Basin to California and midwestern markets. The specific gas volumes to be taken from the Piceance Basin, and interconnections with Piceance Basin suppliers have not been identified in environmental documents for these projects.

While it is possible to identify discrete Piceance Basin drilling projects, it is much more difficult to define the relationship of these projects to regional natural gas pipeline systems, such as the TransColorado project. In many cases, coalbed methane wells are being drilled and completed, but no information is provided in environmental assessment documents about how these individual wells will be connected with existing (or proposed) gathering pipelines that interconnect with larger interstate pipelines.

As discussed in Chapter 3 under Coalbed Methane, the number of Piceance Basin well completions far exceeded the number of well abandonments over the past 5 years. This rapid increase in well completions indicates that gas supplies are being made available faster than this gas can be absorbed by the existing natural gas sales pipeline system.

The economic decisions to construct gathering systems to connect completed wells with sales pipelines are dependent on a variety of factors. These include present and expected future gas prices and any associated incentives, the rates of well replacement required to maintain capacity in existing pipelines, and opportunities to sell more gas via new interstate pipelines. Wells eligible for tax incentives under the coalbed methane drilling program cannot receive tax credits unless the gas is produced and shipped; furthermore, these wells must be produced by the year 2001 in order to qualify for the tax credit. As a consequence, there is a strong motivation to produce these wells within the qualifying time frame.

There is some risk that a number of these wells may not be produced within the prescribed time frame to obtain the tax incentives, if sufficient pipeline transportation capacity is not available. The loss of opportunity to produce these coalbed methane wells, as well as existing shut-in wells, would represent a long-term decrease in potential revenues to natural gas producers.

If TransColorado were not constructed (No Action), the following impacts are expected:

1. Surface disturbance required to construct the foreseeable cumulative projects, which includes projects that would overlap with TransColorado in space and time, would be decreased from approximately 32,800 to 30,000 acres. Identified short- and long-term impacts to natural and human resources from pipeline construction and operation would not occur.

2. The infrastructure (gathering pipelines) necessary to link completed but shut-in Piceance Basin natural gas wells with sales pipelines would be constructed, but likely at a slower rate if TransColorado were not built. The specific locations of these future developments cannot be defined at this time.

3. A delay in construction of an interstate natural gas pipeline to transport Piceance Basin gas from wells drilled under the coalbed methane program may result in a loss of producer tax incentives because of the requirement to produce gas from wells eligible for the incentives within 10 years of well completion.

4. If TransColorado were not constructed, other existing pipeline proposals (CIG Uinta Basin Lateral, Questar Main Line No. 58 Upgrade) may be constructed. Alternatively, another pipeline proposal would likely be submitted to land management agencies to provide a similar service to shut-in Piceance Basin natural gas producers. The timing, location, and interconnections with gas suppliers for such an alternative pipeline proposal are unknown.

5. The Southern Utes may lose an undetermined amount of royalty revenues due to continued competition among all San Juan Basin gas producers for natural gas sales. If the TransColorado pipeline were not built, 300 MMcfd of natural gas could not be transported to market by the El Paso or Transwestern pipeline systems.

6. Estimated tax revenues of $4.2 million per year (first year of operation) would not be received by counties crossed by the pipeline. The operational payroll of $60,800 per month would not be available for local purchases of goods and services.

IRREVERSIBLE/ IRRETRIEVABLE COMMITMENT OF RESOURCES

Construction and operation of the TransColorado Pipeline project could result in either the irreversible or irretrievable commitment of resources including wetlands, cultural resources, soils, timber, wildlife, and fisheries, agricultural and the socioeconomic conditions (Table 4-6). Irreversible is a term that describes the loss of future options. It applies primarily to the effects of use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods of time. Irretrievable is a term that applies to the loss of production, harvest, or use of natural resources. For example, some or all of the timber production from an area is lost irretrievably while an area is serving as a winter sports site. The production lost is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume timber production. The monetary investment by TransColorado is not considered an irreversible or irretrievable commitment of resources. If the TransColorado project were not built, the investment that would have otherwise been spent on the TransColorado project could be spent elsewhere.

TABLE 4-6

TransColorado Gas Transmission Project
Irreversible, Irretrievable, Short-Term, Long-Term
Commitment of Resources

Resource	Irreversible Impacts	Irretrievable Impacts	Relationship of Short-Term Use of Environment and Long-Term Productivity
Air Quality (including noise)	No	No	The emissions from the TransColorado project would not significantly deteriorate the existing air quality in the project area. Short-term noise impacts would occur to nearby residences during pipeline construction. Long-term operational noise from compressor stations would not significantly impact sensitive receptors.
Water Resources	No	No	Water utilized for hydrostatic testing of the pipeline would be obtained from surface water resources. Following testing, the water would be treated and returned to the surface water source.
Wetlands	No	Yes	Removal of wetland vegetation would be a temporary impact. Following abandonment and reseeding, productivity would be restored. The long-term function of the wetland would not be altered.
Soils and Vegetation	No	Yes	Soils lost to increased erosion and vegetation production lost to conversion of land uses would be irretrievable losses. Soil erosion is expected to be short term due to implementation of reclamation measures. Long-term losses in vegetation productivity following reclamation are not expected.
Forestry	No	Yes	Loss of timber production during the life of the project would be an irretrievable loss. Following abandonment and reseeding, productivity would be restored.
Wildlife and Fisheries	No	Yes	Removal or disturbance of habitat would be a temporary impact. Long-term losses in productivity following reclamation are not expected.
Cultural	Yes	Yes	Disturbance of historic or prehistoric cultural resource sites could result in the permanent loss of scientific data.

TABLE 4-6 (CONTINUED)

Resource	Irreversible Impacts	Irretrievable Impacts	Relationship of Short-Term Use of Environment and Long-Term Productivity
Visual	No	No	Significant visual impacts would exist for the life of the project or longer until the pipeline is abandoned, aboveground structures are removed, and revegetation is complete. Removal of structures and rehabilitation of the landscape could restore the natural landscape following project abandonment.
Transportation	No	No	Short-term obstruction or temporary disruption to local roads would occur during construction. There would be no long-term impacts to transportation.
Agricultural	No	Yes	Agricultural crop production would be lost for the season during construction. During the next growing season, production would be reduced but not completely lost. Temporary destruction of forage and temporary changes in grazing patterns could alter allotment plans. Long-term productivity would not be impaired.
Socioeconomic Conditions	No	Yes	In the short term, construction of the project would provide direct employment of an average of 1,440 workers and result in increased spending in local areas. In the long term, operations would employ 20 workers, and increased revenues would be realized by the counties and Federal land management agencies crossed by the pipeline.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term is defined as the construction period of the TransColorado pipeline plus 1 to 4 years of ROW rehabilitation. Long-term is defined as the remaining life of the project through abandonment and reclamation. Many of the impacts associated with the TransColorado pipeline would be short term and would cease to be adverse impacts following ROW rehabilitation. No significant decreases in the productivity of the project area are expected. A tabulation of short-term and long-term impacts is presented in Table 4-6.

CUMULATIVE IMPACTS

Cumulative impacts are defined in the Council on Environmental Quality regulations 40 CFR 1508.7 as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency...or person undertakes such other actions." This section describes current and proposed projects and their current or anticipated impacts in the study area surrounding the proposed TransColorado Gas Transmission Project. This includes addressing current and projected area development (e.g., oil and gas); management activities and authorizations on public lands (e.g., range conversion and forestry programs); land use trends; and applicable industrial/infrastructure components (e.g., utility corridors). The existing, under construction, and proposed projects listed as related projects (see Table 1-2) provide the basis for the cumulative impact assessment. A number of the existing projects listed in Table 1-2 have been installed for 10 to 20 years, and have been revegetated to a stable condition with respect to soil erosion, water quality, and vegetation cover. However, the effects of these existing projects were considered in the cumulative analysis for visual resources and wildlife because of the slow recovery rates of woody vegetation in this semi-arid region. The projects that potentially add to or interact with the TransColorado surface disturbance effects are listed in Table 4-7. Collectively, these are called the "cumulative projects."

Study Areas

The cumulative study area for cumulative land disturbance impacts encompasses the BLM resource areas and national forests crossed or in near proximity to the proposed project route (see Figure 4-7). These Federal management areas include the White River, Glenwood Springs, Grand Junction, Uncompahgre Basin, San Juan, and Farmington BLM Resource Areas and the Grand Mesa- Uncompahgre-Gunnison and San Juan National Forests. The size of the cumulative impact area totals approximately 20,873 square miles.

The cumulative study area for air quality includes regional pollutant sources that may affect nearby PSD Class I areas, specifically national parks and wilderness areas where the least amount of air quality change can be allowed.

Land Requirements

Land disturbance assumptions for the identified cumulative projects were obtained from the respective resource area management plans, the

Table 4-7

TransColorado Gas Transmission Project
Projects Considered for Cumulative Impacts

Project	Projected Start Date and Status	Area Disturbed During Construction	Area Reclaimed in Short-Term	Net Disturbance Long-Term
Gas Gathering Systems				
Conoco Corp. Dragon Trail Unit Well Project	Completed and Reclaimed	183	83	100
Conoco Corp. Dragon Trail Unit, West Douglas Creek Well Project	Completed and Reclaimed	307	106	201
Chandler and Associates, Inc. SW Rangely Field Oil and Gas Development Well Project	Completed and Reclaimed	257	118	139
Conquest Oil Company South Shale Ridge Well Project	Under Construction; Partially Reclaimed	133	23	110
Oryx Energy Company Divide Creek Unit Well Project	EIS Completed; Construction to Begin Summer 1992	141	92	49
Unocal Co. Buzzard Creek Project Well Project	Construction to Begin First half 1992	318	NA	NA
Meridain Oil Gathering, Inc. Longhollow, Oil and Gas Development	Under Construction; Partially Reclaimed	285	NA	NA
Blackwood and Nichols Co., Ltd. Meridain Oil Gathering, Inc. Northeast Blanco Unit Coal-Bed Methane Project	Completed and Reclaimed	687	631	24
Amoco Production Co., Inc. Cedar Hill Gathering System	Completed and Reclaimed	132	132	0
Phillips Petroleum Co. San Juan Coal Seam Gas Gathering System	Construction to Begin April 1992	1,489	1,135	348

Table 4-7 (Continued)

Project	Projected Start Date and Status	Area Disturbed During Construction	Area Reclaimed in Short-Term	Net Disturbance Long-Term
Unocal Corporation Rincon Gathering System	Under Construction; Partially Reclaimed	73	71	2
Meridian Oil Gathering, Inc. 32-9, Unicon and Blanco Trunkline Gathering System	Under Construction; No Reclamation; projected In-Service 1993	906	701	205
Meridian Oil Gathering Inc. Val Verde Gathering System	Under Construction; Partially Reclaimed	1,196	1,156	40
Amoco 30.8 & 31.9 Gathering System Williams Field Service, Co. Manzanares Pipeline	Pipeline Under Construction; Amoco and Majority of Pipeline Reclaimed	1,616	1,416	200
Pipelines				
TransColorado Gas Transmission Project	Review Process; Start Date First Half 1993	2,800	2,765	35
Colorado Interstate Gas Co.[1] Uinta Basin Lateral Natural Gas Pipeline	Review Process; Start Date Second half 1992	1,250	1,240	10
Northwest Pipeline Co.[2] Pacific North West Expansion One Compressor Station in Montezuma Co., Colorado	Review Process; Start Date Second half 1992	10	0	10
Northwest Pipeline Co. San Juan Project	Completed and Reclaimed	312	304	8
El Paso Natural Gas Company Triangle Loop Line	Completed and Reclaimed	109	109	0
Transwestern Pipeline Co.[3] Transwestern/ENRON Transportation Pipeline	Completed; Reclamation Seeding Summer 1992	755	721	34

Table 4-7 (Continued)

Project	Projected Start Date and Status	Area Disturbed During Construction	Area Reclaimed in Short-Term	Net Disturbance Long-Term
El Paso Natural Gas Co.[3] Blanco-Chaco Loop/San Juan Triangle Expansion Project	Under Construction	426	426	0
Other Projects				
U.S. Bureau of Reclamation Animas - La Plata	Early 1993 Early 1994	15,139	NA	NA
U.S. Bureau of Reclamation Dolores Irrigation Project				
National Park Service Replacement of Water Line	Under Construction Completed 1993	170	170	0
U.S. Department of Energy UMTRAP - Uranium Mill Tailings Remedial Action Program	Under Construction	1,950	NA	NA

Note: N/A = Not available in environmental review documents.

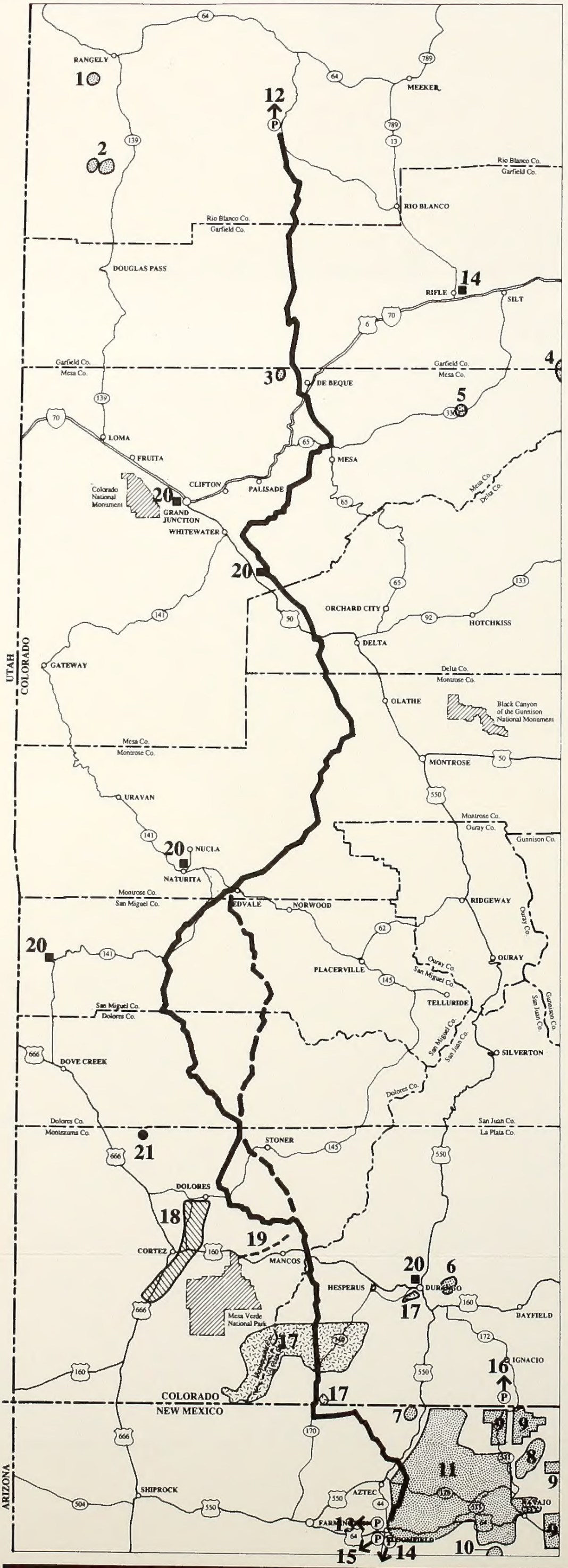
[1] Disturbance in Moffat and Rio Blanco Counties, Colorado. Net acres disturbance based on one compressor station and one meter station.

[2] Estimated Disturbance for one compressor station site.

[3] Disturbance in San Juan County, New Mexico.

PROJECTS CONSIDERED FOR CUMULATIVE IMPACTS

FIGURE 4-7



North 0 4 8 16 miles

Proposed Route

Agency Preferred Route

Gas Gathering

1. Chandler and Associates Inc. SW Rangely Field Oil & Gas Development Well Project
2. Conoco Dragon Trail Unit Well Project
3. Conquest Oil Co. South Shale Ridge Well Project
4. Oryx Energy Co. Divide Creek Unit Well Project
5. Unocal Co. Buzzard Creek Well Project
6. Meridian Oil Gathering Inc. Longhollow Oil & Gas Development
7. Amoco Production Co. Inc. Cedar Hill Gathering System
8. Blackwood and Nichols Co. Ltd. Meridian Oil Gathering Inc. Northeast Blanco Unit Coal-Bed Methane System
9. Phillips Petroleum Co. San Juan Coal Seam Gas Gathering System
10. Unocal Corp. Rincon Gathering System
11. Meridian Oil Gathering Inc. 32-9, Unicon and Blanco Trunkline Gathering System

    Meridian Oil Gathering Inc. Val Verde Gathering System

    Amoco 30.8 and 31.9 Gathering System Williams Field Service Co. Manzanares Pipeline

Gas Pipeline

12. Colorado Interstate Gas Uinta Basin Lateral System
13. El Paso San Juan Triangle System Expansion
14. El Paso Mainline System Expansion
15. TransWestern San Juan Basin System Expansion
16. Northwest Pipeline San Juan System Expansion

Water Related

17. US Bureau of Reclamation Animas-LaPlata
18. US Bureau of Reclamation Dolores Irrigation Project
19. National Park Service Replacement of Water Line

Other

20. UMTRAP-Uranium Mill Tailings Remedial Action Program
21. Northwest Pipline Co. Pacific Northwest Expansion (Compressor Station)

TRANSCOLORADO GAS TRANSMISSION PROJECT

Colorado Oil and Gas Leasing and Development EIS (BLM 1991), and contacts with applicable Federal and state agency personnel.

Other activities resulting in ground disturbance affect both public and private land. Besides oil and gas development on public land, additional mineral development continues, along with residual mining material disposal. Range and forest improvements are conducted by Federal and state agencies. These activities include vegetation manipulation; livestock and wildlife improvement projects; forest management and timber harvest; and recreation facilities. Other activities associated with ground disturbance on both public and private lands include utility ROWs, ditches, and roads; water projects; and industrial/infrastructure development. Interviews with land planners for the Federal lands administered by the BLM and USFS indicated that no other large Federal development or improvement projects require consideration for this cumulative assessment.

The following sections provide an assessment of whether cumulative impacts are ongoing or expected from interactions between the proposed project and other projects listed in Table 4-7. A determination of cumulative effects is based on the relative overlap of projects in time and space and the estimated time frames over which disturbed areas are reclaimed to suitability for former land uses.

Impacts to Air Quality and Noise

Potential air pollution emissions from the proposed project would have cumulative effects in the Four Corners region when combined with a number of existing and foreseeable sources (e.g., coal-fired power plants, refineries, agricultural burning, etc.). These include the projects listed in Tables 1-2 and 4-7, located in Montezuma and La Plata Counties Colorado, and San Juan County, New Mexico. Of primary concern are small, localized sources of NO_x, which may cause cumulative haze visibility and atmospheric deposition effects throughout the region. The State of Colorado (Air Pollution Control Division), NPS, USFS, and the BLM have met to cooperatively address this issue. Since the potential NO_x emissions from the project are relatively small and isolated, it is highly probable the incremental increase in regional, cumulative impacts would not be significant. However, potential cumulative air quality impacts are unknown at this time.

The potential contributions of the TransColorado-Olathe compressor station and the Louisiana Pacific (LP) waferboard facility to cumulative air quality were examined. It was found from a review of the facility permit that the LP facility primarily emits particulate matter and volatile organic hydrocarbons and contributes very little to CO and NO_x background concentrations, the primary pollutants emitted by TransColorado. Therefore, the regional second highest 1- and 8-hour CO concentrations reported in Tables 4-1 and 4-4 are appropriate for the Olathe region and the local annual average background NO_2 concentration was increased from 4 $\mu g/m^3$ to 6 $\mu g/m^3$. These background concentrations have been included in the maximum air quality impact predictions for the TransColorado-Olathe compressor station. The Olathe compressor station lies 10 miles to the southwest of the LP facility and is approximately 350 feet higher in elevation. These terrain and distance factors make it unlikely that compressor station emissions would combine with LP's CO and NO_x emissions to cause regional cumulative air quality impacts.

No cumulative noise impacts are expected because long-term project noise sources (proposed compressor stations) are widely dispersed over a predominantly rural area, lacking existing or foreseeable noise-generating industrial facilities.

Impacts to Topography

The TransColorado pipeline ROW would be restored to the pre-existing contour following construction (with the exception of less than 25 acres on very steep side slopes). As a consequence, TransColorado would not add to cumulative changes in topography within the study area.

Impacts to Leasable Minerals

No direct impacts to oil and gas development, active surface or underground coal mines, or active oil shale leases were identified for projects located within the TransColorado cumulative impact region described previously. Cumulative indirect (future) impacts could occur if mineral prices increase such that minerals underlying the surface facilities could be economically extracted. Under these circumstances, it is likely the pipelines or adjacent facilities would have to be moved if underlying mineral rights take precedence.

Construction and operation of the TransColorado pipeline is expected to stimulate the construction of gathering systems in the Piceance Basin to connect completed wells to the TransColorado pipeline. It is expected that this infrastructure expansion would proceed rapidly so that coalbed methane tax incentives can be collected on gas produced from wells completed under this special government program. The specific locations or land requirements of these gathering systems are not presently known. These projects would require environmental evaluation and receipt of permits from land management agencies prior to construction.

Impacts to Mineral Materials

No direct impacts to active mineral materials operations were identified as a result of construction and operation of the TransColorado or other cumulative projects.

Impacts to Surface Water Quality

The construction of pipeline river and stream crossings would increase suspended sediment for 1 to 5 days during the installation period. This temporary impact would not result in lasting cumulative effects, nor would these effects occur in the same time frame as other projects that could affect the same watersheds. Disturbance of soil and the resulting increase in erosion could cause an increase in salinity of major water courses. This impact was identified particularly for projects in New Mexico. Implementation of erosion control measures identified in all NEPA review documents would control soil losses from individual project areas, thereby reducing potential cumulative impacts.

Impacts to Municipal Watersheds and Water Supplies

The identified cumulative projects occur in such dispersed locations that cumulative impacts to municipal watersheds and water supplies would not occur. No additional surface disturbing activities were identified in the Palisade and Grand Junction watersheds that would be traversed by the proposed and preferred routes.

Impacts to Wetlands

In review of the NEPA documentation of the related projects, approximately 73 net acres of wetlands would be disturbed by project development. Special construction techniques would be employed by all constructors to minimize these impacts. The Animas-La Plata project would destroy approximately 550 acres of wetlands, while creating 526 acres.

Impacts to Soils

Approximately 32,800 acres of soils would be disturbed during the construction of the projects considered for this cumulative analysis. Approximately 30,000 acres would be reclaimed. Individual project impacts would collectively cause a short-term regional increase in water and wind erosion and potential loss of soil productivity. These impacts would be short-term, geographically dispersed, and controlled by the implementation of erosion control measures and revegetation plans. Assuming a 5-year time frame for vegetative stabilization, approximately 30,000 acres would be in the process of rehabilitation within the same time frame as the TransColorado project. These disturbances would represent far less than 1 percent of the land area included within the cumulative study region.

Impacts to Prime and Unique Farmlands

Approximately 525 acres of irrigated farmlands (which include the majority of the prime and unique farmlands associated with the project study area) would be disturbed by the construction of the projects considered for this cumulative analysis. Productivity losses would occur for approximately 2 years, which would equate to the recovery of perennial pasture and hay crops that have been lost from surface disturbance. These impacts would be short-term, and would represent far less than 1 percent of the agricultural lands included within the cumulative study region. Construction and operation of the Animas-La Plata irrigation project near Durango would result in the permanent loss of 44 acres of prime farmland; but an increase of 26,000 acres of prime farmland (if irrigated) when the project is completed.

Impacts to Forestry

Construction of the cumulative projects would remove the available supply of pinyon and juniper fuel wood on approximately 2,950 acres, and timber (pine, aspen) on approximately 500 acres. These long-term losses would represent much less than 1 percent of the area occupied by these fuel wood and timber resources in the cumulative study area.

Impacts to Livestock Grazing

Cumulative disturbance of rangeland would be limited due to the dispersed location of the related projects. Forage loss would be short-term; on most sites forage production would return to pre-construction levels within 5 years.

Impacts to Wildlife

The numerous gas gathering systems proposed, being constructed, and currently operating in the San Juan Basin of southern Colorado and northern New Mexico may be causing cumulative impacts to key big game winter ranges. Initial construction disturbance decreases vegetative cover on these key ranges, potentially decreasing animal populations. While deer and elk readily graze on revegetated pipeline ROW, the rates of disturbance presently exceed the rates of vegetative recovery in this arid region. Approximately 6,100 total acres will or have been disturbed as a result of the San Juan Basin projects considered in Table 4-7. Approximately 820 acres of those disturbed will be converted to long-term operational use. Other factors that are causing, or may cause cumulative impacts in the San Juan Basin, include vehicle use along roadways in oil and gas well fields and along distribution lines that may cause stress to wintering big game.

The combination of past oil and gas development, past oil shale development, and ongoing oil and gas drilling in the Piceance Basin is believed to be causing cumulative impacts to key big game winter ranges in the Piceance and Roan Creek drainages of Rio Blanco and Garfield Counties, Colorado. Similar to the San Juan Basin, it appears that the rate of new surface disturbance from oil and gas development is exceeding the rate of revegetation in this area (see also Leasable Minerals). Pinyon pine and juniper and mountain shrub communities recover slowly in this region. Cumulative impacts to wildlife are not anticipated in other parts of the study area due to large distances between projects (see Figure 4-7) and because of the differing construction schedules.

Impacts to Fisheries

Most pipeline projects and gas gathering systems will require the crossing of rivers, streams, or other water courses. Impacts to fisheries are associated with the short-term increase in sedimentation during the construction stage and the potential increase in salinity resulting from erosion from disturbed areas. Additive sedimentation impacts are not expected because of the short construction periods associated with individual projects, because disturbance is widely dispersed, and because sediment control measures will be applied on projects requiring stream crossing permits.

Impacts to Threatened and Endangered Species

Potential sedimentation impacts to the squawfish, roundtail chub, and razorback sucker were identified for several projects. These impacts may be cumulative if sedimentation or salination of tributaries impact the habitat of the above fish species. However, as noted above for fisheries, it is unlikely that individual projects will additively, or interactively contribute to sedimentation impacts that will affect populations of these species in the San Juan and Colorado River systems.

In the NEPA documentation reviewed for these cumulative projects, no direct impacts on populations of the federally-listed bald eagle or black-footed ferret were identified. Two other projects identified disturbance within Mexican spotted owl habitat of less than 500 acres; no other surface disturbing projects were identified in areas where spotted owls were recorded for the TransColorado project in Dolores and La Plata Counties, Colorado.

Impacts to Cultural Resources

Not all identified projects have been surveyed for the potential occurrence of cultural resources sites. Cumulative impacts to regional cultural resources could occur if projects do not adequately mitigate disturbance of these resources. Currently, the BLM and the USFS have regulations in place to protect cultural resources from unnecessary or unlawful disturbance. Each project area must be surveyed, and identified sites must be reviewed and evaluated prior to disturbance.

Impacts to Visual Resources

Surface disturbance associated with regional oil and gas development, construction of electrical transmission lines, and mineral extraction activities within the study area have caused and will cause cumulative fragmentation of natural landscapes, with an associated reduction in the "naturalness" of these areas. This fragmentation is most widespread in the Piceance Basin, the Plateau Creek drainage in Mesa County, Colorado, the Paradox Basin in southwestern Colorado, and the San Juan Basin in southern Colorado and northern New Mexico. These changes would be viewed primarily by back-road recreationists; these changes cannot be seen or are much less evident in major tourist travel

corridors within western Colorado and northwestern New Mexico.

Impacts to Transportation Systems

Because these projects are widely dispersed in space and time, no cumulative effects on the service levels and maintenance of the regional transportation system are expected. A cumulative increase in the number and length of secondary roads has resulted from the development of oil and gas fields and distribution systems.

Impacts to Socioeconomics

Simultaneous construction of projects within this region would employ approximately 1,300 persons in the northern one half of western Colorado (including TransColorado); approximately 700 persons in southern Colorado and 370 in northwestern New Mexico. These figures do not include the Animas-La Plata project. Cumulative impacts to local populations, housing, tax base, and infrastructure are not anticipated due to the dispersed location of the projects and the varying project start dates and durations. When the Animas - La Plata project begins construction, housing and infrastructure requirements would likely be strained in several southwestern Colorado/northwestern New Mexico communities that would host these workers. There is some potential that early construction efforts on the Animas-La Plata project would coincide with TransColorado Pipeline construction during 1993.

As discussed in Chapter 4, adverse social impacts would likely be incurred by the communities and local residents in close proximity to the various projects. Cumulative impacts would accentuate anger felt by private citizens as a result of additive encroachment, continuing disruption of the social environment, and the perceived loss of privacy. People in this region will likely continue to perceive a threat and loss of control from large federally approved projects.

Impacts to Public Safety

Because of the offset requirements between pipelines, and pipelines and electrical transmission lines sharing the same utility corridor, the cumulative risk to public safety of multiple pipelines in a common utility corridor is not expected to increase.

CHAPTER 5

CONSULTATION AND COORDINATION

EIS PREPARERS AND REVIEWERS

ENSR Consulting and Engineering

This draft EIS was prepared by ENSR Consulting and Engineering, an environmental and engineering consulting firm, under the direction of the BLM and Forest Service. Following are the individuals who participated in the preparation and review of the draft and final EIS.

	Education and Experience	Draft EIS Responsibility
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Lee Howe	10 Years Experience	Graphics

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Michael Boyle Federal Energy Regulatory Commission	NEPA Compliance Review
Diana Menapace Forest Service Regional Office	NEPA Compliance Review
Mike Hammer Forest Service Regional Office	NEPA Compliance Review
Ben Wallingford Forest Service Regional Office	Lands and Realty Review
Richard Fike BLM Montrose District Office	Cultural Resources Coordination and Paleontology Review
Scott F. Archer BLM Colorado State Office	Air Quality Review (including noise)
Jeff Ulrich Supervisor's Office, Grand Mesa, Uncompahgre, and Gunnison National Forests	Socioeconomics Review
Bill Hensley BLM Montrose District Office	Livestock Grazing Review
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Teresa Pfifer BLM Montrose District, Uncompahgre Resource Area	Project Coordination

	Draft EIS Responsibility
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Jerry Crockford BLM Albuquerque District, Farmington Resource Area	Project Coordination
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Lew French Grand Mesa, Uncompahgre and Gunnison National Forests, Ouray Ranger District	Project Coordination
Wayne Quade Grand Mesa, Uncompahgre and Gunnison National Forests, Norwood Ranger District	Project Coordination

CONSULTATION AND COORDINATION

In the course of preparing both the draft and final EIS for the TransColorado Gas Transmission Project, the BLM and Forest Service communicated with and received input from many Federal, state, and local agencies; elected representatives; environmental and citizens' groups; industries, and individuals. Many of these people participated in agency scoping meetings held in June 1990 and in public scoping meetings held in July and October 1990. A summary of the scoping process and the scoping comments received is presented in Chapter 1. The following agencies, groups, and individuals provided input to the draft EIS:

Federal Government Agencies

Department of Agriculture
- Soil Conservation Service

Department of the Army
- Corps of Engineers

Department of Energy
- Western Area Power Administration

Department of the Interior
- Bureau of Indian Affairs
- Bureau of Mines
- Bureau of Reclamation

Department of the Interior (Continued)

- Fish and Wildlife Service
- National Park Service
- Geological Survey

Department of Transportation

Federal Energy Regulatory Commission

Environmental Protection Agency

Advisory Council on Historic Preservation

State Government Agencies

Colorado

- Department of Natural Resources
  - Division of Water Resources
  - Division of Wildlife
- Department of Health
  - Division of Air Quality
- Department of Highways
- Department of Parks and Outdoor Recreation
  - Natural Areas Program
- Office of Archaeology and Historic Preservation

Colorado (Continued)

Public Utilities Commission

New Mexico

Department of Fish and Game

Department of Health
Air Quality Division
Water Quality Division
Environmental Improvement Division

Office of Cultural Affairs, Historic Preservation Division

State Land Office

Interstate Stream Commission

Department of Minerals
Oil Conservation Division

Indian Tribes

Navajo Nation

Southern Ute Tribe

Ute Mountain Tribe

Hopi Tribe

Northern Ute Tribe

Local Governments

Colorado

Rio Blanco County
County Planner
County Assessor

Garfield County
County Planner
County Assessor

Mesa County
Board of Commissioners
County Planner
County Assessor
City of Palisade
City of Grand Junction

Delta County
County Planner
County Assessor

Montrose County
County Planner
County Assessor

San Miguel County
County Planner
County Assessor

Dolores County
County Planner
County Assessor

Montezuma County
Board of Commissioners
County Planner
County Assessor

La Plata County
County Planner
County Assessor

New Mexico

San Juan County
County Planner
Department of Roads

U.S. Senators and Representatives

Benjamin Nighthorse Campbell

Environmental Groups

Sierra Club
Western Colorado Congress

Industries and Individuals

(Detailed list available upon request from Chuck Finch, BLM, Montrose District Office, Montrose, Colorado).

CHAPTER 5

DRAFT EIS DISTRIBUTION

Copies of the draft EIS were mailed to Federal, state, and local governments and to interested organizations and individuals for review and comment. The distribution list for agencies and organizations is included in this final EIS. Asterisks (*) are placed next to the names of those who responded.

Federal Agencies

Forest Service*
Corps of Engineers*
Bureau of Reclamation
Bureau of Mines*
Environmental Protection Agency*
National Park Service*
Congressional Representatives
Bureau of Indian Affairs
Advisory Council on Historic Preservation
Fish and Wildlife Service*
Soil Conservation Service
Federal Energy Regulatory Commission*
Western Area Power Administration*
U.S. Department of Transportation

Colorado State Agencies

Colo. State Clearing House*
Department of Natural Resources*
State Land Board
Governors' Office
Colorado State University
University of Colorado
Department of Agriculture
Department of Local Affairs, Division of Planning
Department of Transportation*
State Historic Preservation Officer
Division of Parks and Recreation
State Engineer*
State Forest Service
Division of Wildlife*
State Geologist
Department of Health, Air Pollution and Water Quality Control Divisions*
Colorado Oil and Gas Conservation Commission

New Mexico State Agencies

Energy and Minerals Department
Environmental Improvement Division
Oil Conservation Division
State Planning Division
Department of Game and Fish
State Land Office
State Historic Preservation Officer
State Engineering Office
State Highway Department

Local Governments

Northwest Colorado Council of Governments
Assoc. Governments of NW Colorado
County Commissioners and Highway Departments in*:
Rio Blanco, Garfield, Mesa, Delta, Montrose, San Miguel, Dolores, La Plata, and Montezuma Counties in Colorado and San Juan County - New Mexico.
San Juan County Highway Department in New Mexico

Other Organizations

Colo. Wildlife Federation
Independent Petroleum Assoc. of Mountain States
Sierra Club*
Club 20
Colorado Environmental Coalition
Colo. Native Plant Society
Nature Conservancy
Rocky Mountain Oil & Gas Assoc.
Western Colorado Congress*
Wilderness Society
American Wilderness Alliance
Colo. Mountain Club
Wildlife Society*
Nature Conservancy
American Wilderness Alliance
Audubon Society of Western Colorado
Western Association of Land Users
Colorado Native Plant Society
Dolores Sportsman's Association
Trout Unlimited
Florida Conservancy District
Southern Ute Agency*
Ute Mountain Ute Agency
Wildlife Society
Rocky Mountain Elk Foundation
Independent Gas Producers Corporation
Independent Petroleum Assoc. of New Mexico
Fort Lewis College
National Audubon Society
Native Plant Society of New Mexico
Navajo Tribe

New Mexico Cactus & Succulent Society
New Mexico Cattle Growers Assoc.
New Mexico Oil & Gas Assoc.
New Mexico Wildlife Federation
Colorado Open Space Council
Colorado Wool Growers
San Juan Archaeological Society
Anasazi Historical Society
Society of American Foresters
Trust for Public Land

Numerous companies and individuals expressing interest were sent copies of the draft EIS.

REVIEW OF THE DRAFT EIS

The draft EIS was filed with the Environmental Protection Agency (EPA) on August 16, 1991. The EPA notice of availability was published in the August 23, 1991, issue of the *Federal Register*.

A news release announcing the availability of the draft EIS, the dates of the 45-day public comment period, and the dates and locations of public hearings was sent to the news media in Colorado and New Mexico.

The comment period was originally scheduled to begin on August 23, 1991, and end on October 8, 1991. Public hearings were scheduled and held in Grand Junction, Montrose, and Cortez, Colorado, on September 24, 25, and 26, respectively. The public comment period was extended another 45 days ending November 22, 1991. Subsequently, a fourth, unscheduled hearing was subsequently held in Norwood, Colorado, on October 16, 1991, at the request of local residents and Representative Ben Nighthorse Campbell.

COMMENTS ON THE DRAFT EIS

Nearly 100 agencies, organizations, or individuals commented on the draft EIS in writing or at public hearings. All comments were reviewed and considered in preparation of this final EIS. Comments that addressed the adequacy of the draft EIS received a response.

Each commentor was given an index number. Commentors are listed on Table 5-1. This table lists the commentor's index number, the source of the comment (written (W) or hearing (H)), the name of the commentor, and a cross reference to the comment/response.

The comments, to which responses were provided in this final EIS, have been combined and paraphrased wherever possible. This was done primarily to reduce the size of the document. Each paraphrased comment was given a number and placed in a category that best represents the issue. This comment number appears in the last column of Table 5-1.

The comments and responses are presented following Table 5-1 in the Comment and Response section of this EIS. The comment number (e.g., AI-1, AI-2) is given and is followed by the paraphrased comment. The number in parenthesis is the commentor's index number.

Comment letters and hearing transcript from Federal, state, and local governments and from organizations and special interest groups are printed in the Comment Letters section following the paraphrased comments. Each comment letter has an Index number which corresponds to the Index number in Table 5-1. Each comment letter also has a comment number that corresponds to the comment column in Table 5-1.

CHAPTER 5

TABLE 5-1

List of Commentors - TransColorado Gas Transmission Project

Index No.	Source	Name of Commentor	Comment (See Comment and Response Section)
1	W	Scott Andrae	EC-07, EC-14, EC-24, EM-01, EM-02, GE-02, GE-19, PUR-02, RT-12, GE-02
2	W	James Kilburn	EC-13
3	W	County Commissioners, Rio Blanco County	
4	W	County Commissioners, San Miguel County	RT-01
5	W	D. B. Powers	EC-19
6	W	Elizabeth Canavan	EM-01, EN-01, REC-01, RT-02
7	W	Thomas Kay	EN-01, RT-02
8	W	Kirby and Dana Weaver	EC-11, EM-01, EN-01, RT-02
9	W	Mike and Shirley Young	EN-01, RT-02, VS-03
10	W	Olen and Mildred Spencer, and Carolyn Johnston	PUR-02, RT-02, RT-13
11	W	Ben Shaw	EN-01, VS-03
12	W	Vern and Anna Koppenhafer	EN-01, RT-01
13	W	Noland and Mrs Alexander	RT-02
14	W	David Yoder	EC-18, RT-09
15	W	Thomas Shipps for Southern Ute Indians	EC-01, EC-02, EC-06, EC-25, ME-01, PUR-03, RT-16, RT-17, TR-01, TR-02
16	W	U.S. Fish and Wildlife Service	PR-07, RE-10, TE-06, WA-04
17	W	Rollie and Joan Hoch	EN-01, EN-04, PI-01, RT-01, RT-02, RT-03, VS-03
18	W	Jake and Roma Riffel	EC-15, VS-03
19	W	U. S. Bureau of Mines	
20	W	Susan Shields and 200 signatures	EC-12, GE-02, PI-02, RT-12
21	W	Glenn Gentry	
22	W	Mary and Earl Johnson	
23	W	Donald K. Majors	EC-13, RE-04, RT-01, RT-04
24	W	Clay and Jean Bader	FA-01, PUR-05
25	W	County Commissioners, Montezuma County	RT-04
26	W	Colorado State Clearinghouse	

Index No.	Source	Name of Commentor	Comment (See Comment and Response Section)
27	W	Western Area Power Administration	AU-06, GE-01, GE-05, GE-06, PUR-01, UT-05,
28	W	Colorado Department of Transportation	AC-03, AU-05, PR-18
29	W	Colorado Department of Health	AI-05, AI-07
30	W	Colorado State Office of the State Engineer	AU-03
31	W	Colorado Chapter of the Wildlife Society	PR-10, PR-14, RT-03
32	W	Peter Schertz	EC-20, FI-01, FI-02, PR-04, PR-13, PR-19, WA-05
33	W	U.S. Fish and Wildlife Service	PR-05, PR-07, PR-09, PR-15, PR-16, PR-23, PR-24, TE-06, WA-02, WA-03, WA-04
34	H	Bill Prather	AC-01, AC-02, FA-06, FA-08, PI-01, PR-01, RT-01
35	H	City of Grand Junction, Property Agency Tim Woodmansee	AU-04, RE-03, RT-07
36	H	City of Grand Junction, Utilities Manager Trainer	GE-04, PR-27, PR-28, PU-02, SO-02, VS-05, WA-01
37	H	Dale Albertson	PI-01, RT-08, VS-06
38	H	Southern Ute Indian Tribe, Attorney Tom Shipps	AU-01, AU-02, EC-01, EC-04, EC-05, ME-01, ME-02, TR-01, TR-03
39	H	Southern Ute Indian Tribe, Natural Gas Barterer Jerry Bruner	EC-03
40	H	Becky Wieting	EN-01, PR-01, PR-21
41	H	Western Colorado Congress, Senator Angeline Barrett	EN-01, VS-07
42	H	Ken Baird	EC-18, FA-03, RT-01, RT-14
43	H	Tom Colbert for County Commissioners, Montezuma County	EM-03, RE-05, RT-04
44	H	Bob Bement	EN-01, FA-01, FA-03
45	H	Robert Brubaker	RT-01
45a	W	Honorable Benjamin Nighthorse Campbell	
46	H, W	Gary Shaw	AL-06, RT-01, RT-04, RT-09, RT-15, RT-41, UT-03
47	H	Lewis Head	EC-18, RT-04
48	H	Steve Hinton	EN-01, RT-01
49	H	Judith Morris	RT-04

Index No.	Source	Name of Commentor	Comment (See Comment and Response Section)
50	H	Mary Margaret Johnson	RT-04
51	H	Zelpha Tully	EC-22, RT-04, RT-12, UT-01
52	H	Glenn Gentry	EC-08, EC-09, EC-10, GE-09, RT-03, UT-06, VS-04
53	H	Glen Humiston	EC-13, EC-19, EM-01, EN-O3, FA-01, FA-02, FA-05, FA-07, GE-24, MI-01, PI-01, PR-03, PU-01, RT-01, RT-04, SO-01, VS-01, VS-03
54	H	Lloyd Everett	PI-01, RT-04
55	H	Lavena Saunders	EC-18, EN-01, RT-01
56	H	Mary Colgan for Mary Wallace	REC-02, RT-01
57	H	D.B. Powers	
58	H	Mary Colgan	EC-21
59	H	Bob Colgan	EC-16, EC-17, EN-01, EN-02, PR-52, PU-01, RT-05, RT-12, SO-01, SO-03, VS-02
60	H	Anita Collins	AI-17, EC-13, EN-04, PU-01, PUR-02, PUR-04
61	H	Dixie Robbins	GE-08, UT-02, UT-04
62	H	Bob Maynes	RT-04
63	H	Mr. Young (No first name given)	RT-04
64	W	Colorado Division of Wildlife	FI-02, FI-03, GE-07, PR-02, PR-06, PR-08, PR-11, PR-12, PR-17, PR-20, RT-03, TE-02, TE-03, TE-04, TE-05, TE-07, TE-08, WL-01, WL-02, WL-03
65	W	Reece V. and Leslie Ann Malles	FA-04, PR-05, RE-01, RE-02, RT-06
66	W	Kerrie and Patrick Kilpatrick	EC-23, PR-22, RT-10, VS-08
67	W	Jesse V. West	FA-09, RT-03, WL-04, WL-05
68	W	U. S. Geological Survey	AL-09, PR-25, PR-26, RE-06, RE-07, RE-08, WA-06
69	W	Rio Blanco County, Department of Development	PR-32, RT-18, WL-06
70	W	County Commissioners, Rio Blanco County	EC-26
71	W	U.S. Army Corps of Engineers	AU-07, AU-08, AU-09, AU-10, CU-01, PR-29, PR-30, PR-31, WA-07
72	W	Sierra Club, Weminuche Group	AI-01, AI-08, AI-13, AL-08, GE-10, GE-11

Index No.	Source	Name of Commentor	Comment (See Comment and Response Section)
73	W	Betty Harrah	EC-18, RT-19, UT-07
74	W	Zelpha and Wayne Tully	EC-8, EC-9, EC-11, EC-27, EC-28, EC-40, UT-07
75	W	Gene and Priscilla Leach	RT-40
76	W	Judith E. Morris	RT-04
77	W	Cecil James and 26 Landowners	AL-05, AL-07, AL-10, AL-11, EC-33, EC-34, EC-35, EC-41, GE-18, GE-23, PU-01, PUR-02, PUR-04, PUR-05, RT-06, RT-28, SC-04, VS-02, VS-15, WL-11
78	W	Jack W. Scott	EC-11, EC-30, EC-31, EM-01, EM-02, EN-01, EN-07, EN-08, EN-10, EN-11, EN-12, PR13, PR-38, RT-01, VS-16, WA-13
79	W	Melanie Enstrom	RT-10
80	W	Mr. and Mrs. Gale Ragsdale	RT-10
81	W	Steve Arrowsmith	AI-01, AI-14, AL-12, EC-41, GE-23, PUR-04, PUR-05
82	W	Federal Energy Regulatory Commission	RT-02, RT-05, RT-11
83	W	La Plata County, Director of Planning Services, Rusty Bonser	AC-04, CU-02, EC-11, EC-18, EC-36, EN-07, PR-39, PR-40, RT-01, RT-29, VS-17
84	W	San Miguel Greens, Art Goodtimes	AL-08, AL-12, AL-13, CU-03, EC-32, EC-37, EN-06, GE-08, GE-12, GE-19, RE-09, RE-12, REC-03, RT-16, RT-17, SC-07, TE-15, VS-14,
85	W	Western Colorado Congress, Jerry Swingle	AC-05, AI-15, AL-02, AL-03, AL-12, AL-13, EC-14, EC-15, EC-18, EC-38, EC-39, EN-05, EN-13, GE-15, GE-20, GE-25, MI-04, PR-41, PR-51, PUR-01, PUR-02, PUR-06, PUR-07, RT-01, SC-08, SC-10, SC-11, SC-12, SC-13, VS-18, WA-02, WA-29, WA-30

Index No.	Source	Name of Commentor	Comment (See Comment and Response Section)
86	W	City of Grand Junction, City Property Agent Tim Woodmansee	AU-04, AU-12, AU-13, FA-10, GE-03, GE-04, GE-13, GE-14, GE-16, GE-17, GE-26 PR-27, PR-34, PR-35, PR-36, PR-37, PR-42, PR-43, PR-44, PR-45, PR-46, PR-47, PR-48, PU-01, PU-02, RE-03, RE-10, RE-11, RT-01, RT-12, RT-30, RT-32, RT-33, RT-34, RT-35, RT-36, RT-37, RT-39, SC-01, SC-02, SC-06, SC-09, SC-14, SO-06, SO-07, SO-08, SO-09, SO-10, SO-11, TE-12, TE-13, VS-13, VS-19, VS-20, VS-21, VS-22, VS-23, VS-24, VS-25, VS-26, WA-01, WA-12, WA-14, WA-15, WA-16, WA-17, WA-18, WA-19, WA-20, WA-21, WA-22, WA-31, WL-12, WL-13, WL-14, WL-15,
87	W	County Commissioners, Mesa County	AL-09, RT-31, RT-35, SC-05
88	W	Garfield County Planning Department	EN-09, FA-11, GE-21, PR-50, SC-03, SC-06, TE-14, VS-27, WA-25
89	W	TransColorado Gas Transmission Company	AI-02, AI-12, AI-16, AI-18, AI-19, AL-03, AL-04, AL-06, AU-11, EC-29, MI-02, MI-03, PR-33, RT-20, RT-21, RT-22, RT-23, RT-24, RT-25, RT-26, RT-27, SO-04, SO-05, TE-01, TE-04, TE-09, TE-10, TE-11, TR-04, VS-09, VS-10, VS-11, VS-12, VS-13, WA-08, WA-09, WA-10, WA-11, WL-07, WL-08, WL-09, WL-10
90	W	U.S. Environmental Protection Agency	AI-07, PR-37, PR-51, WA-23, WA-24, WA-26, WA-27
91	W	Duane and Kay Broman	
92	W	Steve Herndon	EC-42, EM-02, PR-53, RE-10, RT-01, RT-10, RT-24, RT-38, VS-28
93	W	National Park Service	AI-03, AI-04, AI-05, AI-07, AI-10, AI-11, AU-14, REC-02, WA-28
94	H	Lisa Foxwell	AL-01
95	H	Art Goodtimes	GE-22, RT-01, RT-02, RT-10, UT-08, VS-29
96	H	Carmen Lawrence Tucker	EC-13, FA-11, FA-12, PI-01
97	W	Mr. and Mrs. Laurence Broderick	

Comments and Responses

ACCESS AND TRANSPORTATION

AC-01 Comment: The railroad crossing in the DeBeque area near the Prather Ranch is not listed in the draft EIS. (34)

Response: The discussion of transportation services on page 122 of the draft EIS focused on the primary highway and railroad services near the pipeline routes. Although a listing was not included in the draft EIS, all railroad crossings were marked on resource maps that were used in the impact analyses. The railroad crossing in the DeBeque area near the Prather Ranch was shown on the resource map, and included in the number of railroad crossings identified in the draft EIS.

AC-02 Comment: How is the crossing of the D.&R.G single railroad track in the DeBeque area near the Prather Ranch going to be accomplished? (34)

Response: All railroad crossings will be bored, as described on page 35 in the draft EIS.

AC-03 Comment: The Colorado Department of Transportation would like a copy of the transportation plan detailing information on highway crossing locations and on haul trucks. (28)

Response: TransColorado has given the Colorado Department of Transportation a copy of the transportation plan.

AC-04 Comment: The EIS needs to specifically address the roads and transportation needs and impacts in La Plata County. (83)

Response: The draft EIS discussed the impacts on transportation services in general terms on page 166. Although no listing of transportation services was provided in the draft EIS, the transportation resource maps highlighted all highways to be used for construction. To construct the agency preferred route in La Plata County, the following county roads would be used: 139, 105, 120, 119, 118, 116, 117, 100, 104, and 105. These roads are listed in a north-to-south direction.

AC-05 Comment: The EIS needs to analyze the environmental effects of the entire transportation system needed to transport the gas to market. (85)

Response: The request to analyze the environmental effects of the entire transportation system needed to transport gas to market is outside the scope of this impact assessment. Separate environmental analyses and regulatory approvals have been obtained for the El Paso and TransWestern systems, which are the potential mainline gas transportation carriers beyond the TransColorado pipeline terminus at Bloomfield, New Mexico.

CHAPTER 5

AIR QUALITY AND NOISE

AI-01 Comment: Substituting the Dolores Alternate 1 compressor station site for the Dolores Alternate 2 site may decrease visibility impacts at Mesa Verde National Park, but it would not correct the primary problem of air pollution emissions from the compressor. It would simply relocate it. (72, 81)

Response: Table 4-1 and Table 4-4 have been included in the final EIS to summarize the air quality impact analyses performed for each compressor station. This includes the maximum predicted impact regardless of station location. Additional air quality and visibility analyses were performed for Dinosaur National Monument, Black Canyon of the Gunnison Wilderness Area and National Monument, and Mesa Verde National Park; areas that have unique air quality management requirements.

AI-02 Comment: The air quality impacts discussion is misleading because first level screening models results were inappropriately used to identify potential impacts. Relatively simple screening models provide very conservative estimates of potential impacts, and should be used to indicate when and if to apply more "refined modeling"; they do not necessarily represent actual ambient air quality impacts. Based on the results predicted by the screening analysis, the draft EIS implies that there could be potentially significant impacts, yet the use of clean burn reciprocating and turbine engine emission data and more "refined modeling" does not support this assertion. (89)

Response: The air quality impact analyses in Chapter 4 of the final EIS reflect "refined modeling," utilizing revised emissions and measured meteorologic data where appropriate. "Screening" analyses are applied to provide "first-cut, worst-case" results; if potential air pollution sources pass these conservative tests, then more refined analyses are not needed.

AI-03 Comment: The cumulative NO_x concentration at Mesa Verde National Park is a specific concern; in addition to the visual effect of a plume from the compressor station, an Air Quality Related Values (AQRV) analysis needs to be performed to examine effects on the vegetation, natural water sources, fauna, and cultural resources. Specifically, will the nitrates and other aerosols released deteriorate the archeological ruins within the park? If the potential impacts cannot be addressed at this time, project planning should cease until this analysis can be conducted. (93)

Response: Table 4-1 and Table 4-4 have been included in the final EIS to summarize results of the air quality impact analyses, including potential impacts at three NPS administrative units. In the absence of established scientific analysis methodology, the BLM believes that the NPS is better qualified to estimate potential bio-physical impacts to natural and cultural resources under their administration. 40 CFR 1502.22 identifies the proper environmental impact analysis procedure where data or analysis methods are beyond the "state-of-the-art." This does not include stopping a proposed project "until [the] analysis can be conducted." However, since the potential air quality concentrations are low, it is likely impacts would not be significant.

AI-04 Comment: Potential air quality impacts due to the proposed TransColorado Olathe compressor station should be combined with the already-recognized effects of the Olathe Louisiana Pacific waferboard plant, in order to determine their combined effects on the PSD Class I legislated air quality of the Black Canyon of the Gunnison Wilderness Area. (93)

Response: The air quality impact analysis included background concentrations of pollutants from the Olathe Louisiana Pacific wafer board plant. See also response to AI-01.

AI-05 Comment: The draft EIS lacks modeling information related to potential exceedence of the PSD Class II NO_2 increment. Many small NO_x emission sources near Mesa Verde National Park may cumulatively cause haze visibility, NO_2 PSD increment consumption, and atmospheric deposition effects. A total pollutant loading cumulative dispersion analysis needs to be performed by modeling the background NO_2 concentrations, the proposed compressor stations, and all other NO_2 PSD increment-consuming sources in the area. The BLM, NPS, and the Division should cooperatively study this problem. (29, 93)

Response: The air quality impact analysis included background concentrations. The data and analytical methods necessary to perform a regional, cumulative air quality impact analysis for small NO_x emission sources near Mesa Verde National Park are not available. The BLM has prepared a Draft Memorandum of Understanding requesting the cooperation of the States of Arizona, Colorado, New Mexico and Utah, the NPS and the USFS to develop the means of collecting this data and performing the analysis. Since the potential NO_x emissions from the proposed project are relatively small and isolated, it is highly probable the incremental increase in regional, cumulative impacts would not be significant.

AI-06 Comment: The Uncommitted Mitigation discussion (draft EIS, pages 185 and 186) should be deleted in the final EIS. All the proposed reciprocating compressor facilities would utilize lean-burn engines. At the Piceance and Olathe facilities, turbines would be installed; however, lean-burn technology is not commercially available for turbine engines. Also, selective catalytic reduction is not commercially available for pipeline compressor engines. It should be noted that electrification shifts the location of pollution from the compressor station to the power generation site. In addition, power sources may not readily be available or as economically viable. (89)

Response: Although the control measures listed in the draft EIS were not necessary for the proposed project to meet air quality requirements, they were included to identify measures the proponent could consider to further reduce NO_x emissions. They have been removed from the final EIS.

AI-07 Comment: The draft EIS lacks modeling information needed to determine the potential for violation of NPS and State of Colorado visibility requirements for Mesa Verde National Park. The final EIS should include revised visibility analyses in which NPS-proposed Best Available Control Technology emissions are used, or a Level 2 VISCREEN modeling analysis is performed. A table of VISCREEN output values for each of the compressor stations be listed. For Mesa Verde National Park, the analysis should use the following seasonal measured background visual range values: spring 198 km, summer 131 km, fall 140 km, and winter 179 km. A statement should also be included that emphasizes that any perceptible visibility impairment at Mesa Verde National Park or Black Canyon of the Gunnison Wilderness Area and National Monument is unacceptable. (29, 90, 93)

Response: Table 4-1 and Table 4-4 have been included in the final EIS to summarize results of the air quality impact analyses performed for each compressor station. None of the new compressor stations are predicted to exceed Prevention of Significant Deterioration increments or National Ambient Air Quality Standards; all passed either Level 1 or 2 VISCREEN analyses.

Appendix H, Tables H-1 and H-2 have been included in the final EIS to summarize results of the visibility analyses performed for the proposed Piceance Creek, Olathe, Dolores Alternate 1, and Dolores Alternate 2 compressor stations. The Dolores compressor station is no longer proposed for the project and therefore is not included in the analysis. Potential visibility impacts were analyzed using the VISCREEN Level 1 and 2 methodologies, which showed all proposed compressor stations did not have the potential to be perceptible under "reasonable worst case" conditions (EPA 1988). A background visual range value of 219 km was assumed for Mesa Verde National Park; a more conservative assumption (i.e.; predicting greater impact) than the

recommended spring value of 198 km. The National Park Service should determine what level of potential visibility impairment is acceptable for their own administrative purposes.

AI-08 Comment: Although the draft EIS justifies pipeline construction to meet the "increased demand for natural gas" to "clean up the air" in the Midwest and California, the proposed project would cause permanent air quality degradation in one of the few remaining "clean air" regions in the United States. The final EIS should include a net air pollution audit including the potential air quality improvements in market areas (i.e.; fuel-switching for transportation and electric generation), but also air quality degradation that would occur in the Rocky Mountain West (due to increased exploration, development, production, and transportation of natural gas). (72)

Response: The market for natural gas has increased for several reasons, including fuel-switching to reduce air pollutant emissions. Potential air quality impacts resulting from the proposed project were analyzed and described in the EIS and were determined not to be significant. The recommended audit of net air pollution throughout the market area (the Midwest and California) is clearly beyond the scope of this EIS.

AI-09 Comment: Accelerated erosion and consequent impacts on air quality (during the 1 to 5 year period) are not addressed in the draft EIS. Specifically, particulates produced by wind erosion are not considered in the analysis. (68)

Response: Potential air quality impacts due to wind-blown (fugitive) dust during construction were included in the draft EIS (Pages 156 and 171). Significant air quality impacts are not anticipated due to fugitive dust once vegetation is re-established on disturbed lands.

AI-10 Comment: Installation of uncontrolled reciprocating compressor station engines near a PSD Class I area is not considered Best Available Control Technology (BACT). Nitrogen oxides (NO_x) emissions from reciprocating compressor engines would be reduced by up to 90 percent with the application of selective catalytic reduction control technology. Using a turbine compressor engine would reduce NO_x emissions by 50 percent. These technologies are considered by the National Park Service to represent BACT. (93)

Response: The determination of Best Available Control Technology would be made by the PSD permitting authority (the states of Colorado or New Mexico) during the New Source Review process for obtaining a Prevention of Significant Deterioration permit. However, the BLM included a discussion of NO_x control technologies which could further reduce air pollutant emissions from compressor stations in the draft EIS (page 185).

AI-11 Comment: The EIS failed to mention that under the "No action" alternative, there would no air quality deterioration. (93)

Response: Whether or not the proposed project is approved, there are, and will continue to be air quality impacts throughout the region (e.g.; impacts due to industrial sources such as coal-fired power plants, automobile traffic, prescribed fires, etc.) Clearly, additional air quality impacts due to the project would not occur if the project is not developed.

AI-12 Comment: Regardless of where the pipeline is located, the compressor stations will produce noise. The draft EIS states that noise at the nearest house will be limited to 55 dBA. But noise at my house is louder, a half mile away, than at a house located next to an existing compressor station. The 55 dBA stipulation is at the nearest receptor and is not an absolute maximum limit. (89)

Response: The description of noise abatement requirements in the draft EIS has been revised to better explain existing regulations. BLM authorized activities are required to comply with all local, state, and Federal air quality regulations, including noise standards. State law (Colorado Revised Statues, Title 25, Article 12) requires that noise impacts generally be less than 50 dBA at night (7:00 pm to 7:00 am) and 55 dBA during the day at all residences, regardless of distance from the source. During the day, exceedences of the 55 dBA standard are allowed occasionally (noise levels "may be increased by 10 dBA for a period of not to exceed fifteen minutes in any 1-hour period.")

AI-13 Comment: Compressor station emissions into air presently considered to have "good quality" would cause degradation with visible and nonvisible impacts. (72)

Response: The EIS analysis indicates that compressor station operating would not degrade air quality in excess of state and Federal air quality standards at any compressor station location.

AI-14 Comment: A large amount of estimated emissions of nitrogen oxides, carbon monoxide, and hydrocarbons are listed but have no stated unit of measurement. How much pollution is this? (81)

Response: Units of measurements for these emissions have been added to these tables.

AI-15 Comment: The final EIS should include a net air pollution audit of the entire project including potential air quality improvements in market areas and air quality degradation in the Rocky Mountain West. (85)

Response: This request is outside the scope of this project, which is to transport natural gas by pipeline.

AI-16 Comment: Emission source data is not identified for all facilities on Table 2-6 of the draft EIS. The table also fails to identify the units for the main figures. (89)

Response: See response to A1-14.

AI-17 Comment: The large turbines used on compressors create noise in the vicinity of the compressor stations. (60)

Response: The draft EIS addresses the effects of compressors on noise levels near the compressor stations under "Air Quality and Noise" and in Tables 4-2 and 4-5 in Chapter 4 of the final EIS.

AI-18 Comment: The 55 dBA stipulation applies to the nearest receptor and is an absolute maximum limit. (89)

Response: See response to A1-12

AI-19 Comment: Table 4-4 - Delete Dolores Alternate #2, Big Gypsum site, which appears to be identified twice. (89)

Response: The changes have been incorporated into the text. See Tables 4-2 and 4-5 in the final EIS.

ALTERNATIVES TO THE TRANSCOLORADO NATURAL GAS PIPELINE

AL-01 Comment: The commentor is disappointed that the conservation alternative was not explored. (94)

Response: Section 1502-14 of the Council on Environmental Quality's (CEQ) National Environmental Policy Act regulations requires the EIS to examine all reasonable alternatives to the proposal. The CEQ has stated that reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense. The emphasis here is on what is "reasonable." The conservation alternative was explored and found not to be a currently feasible alternative because the incentives to conserve energy are largely dictated by energy prices. Energy prices in turn are influenced by market forces that are not under the control of the government, or the oil and gas industry.

AL-02 Comment: The final EIS needs to analyze alternatives other than the use of natural gas for improving air quality conditions in market areas such as southern California. (85)

Response: Burning natural gas to improve air quality in southern California represents one of several end uses for natural gas conveyed by TransColorado. These potential uses include steam generation for oil recovery and for residential and industrial space heating. Analysis of the impacts of end uses is outside the scope of this EIS, which addresses the environmental effects of conveying natural gas to market via pipeline.

AL-03 Comment: The Northwest Pipeline is no longer a viable pipeline system alternative. (89)

Response: The amendment of the Northwest Pipeline Corporation application does not invalidate consideration of this pipeline as a potential pipeline system alternative. The issue is whether the Northwest system can be modified to accommodate TransColorado gas, which is unrelated to the Northwest's expansion plans.

AL-04 Comment: There are no viable alternatives to the TransColorado proposal under End Use Pipeline Alternatives. (85, 89)

Response: The primary justification offered by the commentor for invalidating the Kern River Pipeline as an end use pipeline system alternative to TransColorado is that end use markets are different (the commentor states that Kern River gas is dedicated to enhanced oil recovery in California); no information has been offered by TransColorado to indicate that TransColorado gas could not be used for the same end use purpose as Kern River gas.

AL-05 Comment: The Pipeline System Alternative was dismissed without adequate analysis and your reasons for dismissing it are invalid. (77)

Response: The Northwest Pipeline was not found to be a viable pipeline system for the reason stated in Chapter 2, Alternatives Considered but Eliminated from Detailed Analysis. The analysis of the requirements to make the Northwest Pipeline system a functional system alternative is based on a FERC data request (Northwest Pipeline 1991) in which Northwest was required to demonstrate how Northwest could convey gas from TransColorado gas sources. The greater land disturbance required to construct the required new lateral pipelines and other pipeline and

compression upgrades on the Northwest Pipeline system to convey TransColorado gas volumes provides a valid reason to eliminate this alternative from detailed consideration. This analysis to examine opportunities to convey TransColorado gas is unrelated to Northwest's system upgrade that was evaluated in a recently released FERC EIS.

AL-06 Comment: With a minimal amount of effort your agency could include substantial documentation within the EIS that would support a No Action Alternative, which, in all honesty, is probably the most viable alternative. (46)

Response: The No Action Alternative, which is partially defined as not issuing the necessary Federal grants/permits/certificates, is being considered as a viable alternative in the final EIS. The purpose of the No Action alternative is to provide the agency decision maker and the public with an estimate of the condition of the environment without the project. The decision maker must make a determination whether construction and operation of the project adequately protects the public interest while meeting the project purpose. The BLM and USFS decision-makers will record their findings in the Record of Decision, which will be prepared after publication of the final EIS.

To provide a better understanding of the No Action Alternative, the draft EIS was revised (See Chapter 2, Description of No Action Alternative in the final EIS) to include a "reasonable foreseeable development" scenario that identifies the projects that have been recently completed, or are presently proposed. No Action in Chapter 4 has been revised to provide an estimate of the future situation without TransColorado that considers the "reasonable foreseeable development" described above.

AL-07 Comment: The commentor does not feel that the "No Action Alternative" has been given a proper and fair evaluation in the draft EIS. (77)

Response: See response to AL-06.

AL-08 Comment: The commentor is opposed to the project and supports the No Action Alternative. (72, 84)

Response: Thank you for your comment. See response to AL-06.

AL-09 Comment: The draft EIS does not address a full range of alternatives, as required by the National Environmental Policy Act. (87)

Response: The draft EIS has been revised to reflect the CEQ Regulations for Implementing the Procedural Provisions to the National Environmental Policy Act (40 CFR Part 1501.2(c)) that state: "Study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources as provided by section 102(2) (E) of the Act." In the spirit of NEPA and CEQ, TransColorado has developed and studied over 30 routes for the pipeline in an effort to resolve conflicts with and impacts to resources, including the private property owners (see Chapter 1, Route Selection Process). Alternatives to building the pipeline have also been explored. As stated in Chapter 1, Alternatives Considered but Eliminated from Detailed Analysis were felt to be outside the scope of this EIS were not analyzed.

AL-10 Comment: If Northwest Pipeline completes their upgrade, the impacts of the upgrade would be minor compared to those of TransColorado. (77)

Response: Your comment is noted.

AL-11 Comment: The commentor questions the conclusions reached in the No Action Alternative. (77)

Response: See response to AL-06.

AL-12 Comment: The EIS should explain the reason for not considering the Energy Conservation Alternative, Pipeline System Alternative, and End Use Alternative and why the No Action Alternative appeared inadequate. (81, 84, 85)

Response: See responses to AL-01, AL-04 and AL-06.

AL-13 Comment: In considering alternatives to the TransColorado pipeline, the EIS needs to consider and include items such as: 1) the renewable resources that are available for generating electricity in the market areas and at what cost, 2) the cost of new pollution control equipment versus burning natural gas, 3) the degree to which conservation is contributing to decreased energy use in the market areas, and 4) actions that southern California is taking to reduce is vehicle traffic (a major source of air pollution). (84, 85)

Response: See responses to AL-01 and AL-02.

AUTHORIZING ACTIONS

AU-01 Comment: We request that the BLM requires, as one of its stipulations, written evidence of consent making a decision about the project by any Indian tribe, whether it's prior to construction of this, or even approval, of this project going forward. (38)

Response: Obtaining a ROW from any Indian tribe is a process of negotiation between TransColorado and the tribe. This negotiation is outside of the environmental process. For BLM to insert itself in the permit acquisition process could be interpreted to be action outside of legislative authority. TransColorado must obtain any required ROW grants from affected Indian tribes before their project can be constructed across Indian land. On December 20, 1990, FERC issued a "Preliminary Determination on Non Environmental Issues" concerning the TransColorado Project. The FERC determined that the TransColorado proposal is required by the public convenience and necessity. Further consideration of non-environmental issues should be brought before the FERC in its continued proceeding in the TransColorado proposal. The BLM does not plan to require written evidence of consent by any Indian Tribe prior to making a decision about the project.

AU-02 Comment: Since the preparation of the draft EIS, the Southern Ute Indian Tribe has acquired a portion of property within the Agency Preferred Alternative that's located within the Southern Ute Indian Reservation. There now remains no southern quarter for this pipeline that will not cross Indian land. In order for the ROW to be granted across Tribal land, Tribal consent is required by federal statute. There's no right to condemnation, the Tribe cannot be sued without waiving its sovereign immunity, and the Tribe has no intention of granting a pipeline ROW to TransColorado. (38)

Response: The EIS text has been revised to indicate the proposed/agency preferred route could cross lands currently owned by the Southern Ute Indian Tribe or state-owned lands. See Chapter 2, Introduction and Chapter 3, Socioeconomics sections.

AU-03 Comment: A substitute water supply plan approved by the Colorado Division of Wildlife would be required to replace any out-of-priority diversions from the streams. Well permits would be required from this office to construct new wells or to replace any existing wells. (30)

Response: The EIS has been revised to indicate no water would be taken that is "out of priority" from any streams or water sources (Chapter 2, Proposed Action, Special Construction Areas, River and Stream Crossings in the final EIS). TransColorado would not use existing wells or drill new wells to supply any water needs for the construction of the pipeline. Protection procedures presented in Table 2-12 and 2-14 list the parameters for water use in the project area.

AU-04 Comment: TransColorado will be required to obtain a watershed district permit from the City of Grand Junction prior to constructing a pipeline within the Whitewater Creek drainage basin or the Kannah Creek drainage basin. (35, 86)

Response: TransColorado understands that acquisition of easements across lands other than federal agencies is required. Before construction begins, TransColorado would negotiate with all landowners including municipalities to acquire pipeline rights. See Chapter 1 of the EIS for Easement Acquisition Process requirements.

AU-05 Comment: TransColorado will be required to obtain utility permits from the Colorado Department of Transportation before beginning any work on the highway ROW. This information should be added to Table 1-3, TransColorado Gas Transmission Project Authorizing Actions. (28)

Response: The EIS has been revised to indicate that TransColorado would be required to obtain utility permits from the Colorado Department of Transportation. See Table 1-3 in this final EIS.

AU-06 Comment: The conditions of approval given by Western Area Power Administration may include agreements where the project is found to interfere with the operation and maintenance of high-voltage electric power transmission lines. (27)

Response: This situation has been recognized, and Table 1-3 lists the need for conditions of an approval permit from Western Area Power Administration.

AU-07 Comment: The construction of rock waterways in streams with high seasonal flows will require either individual permit, nationwide permit, or regional general permit authorization. The nationwide and regional general permits for bank stabilization allow only one cubic yard and two cubic yards of material, respectively, per running foot below the ordinary high water mark. (71)

Response: The EIS has been revised to reflect that at some stream crossings where high seasonal flows are expected, TransColorado would cover the trench backfill of the pipeline crossing with riprap or other erosion protection. This activity will require authorization by the Corps of Engineers under a nationwide permit, a regional bank stabilization permit, or an individual permit. TransColorado would be required to provide at a minimum information on the volume of material to be placed over the trench, type of material, plan and section drawings, and other information required to obtain the permit (see Chapter 1, Federal Approval Process and Authorizing Actions Section, and Chapter 2, Proposed Action, Special Areas Construction, Rivers and Stream Crossings section, of this final EIS).

AU-08 Comment: TransColorado must address the concerns of the City of Grand Junction and the Town of Palisade regarding their municipal watersheds before construction of the pipeline through these watersheds can be authorized by the Corps of Engineers, nationwide permit number 12. (71)

Response: The EIS text has been revised to include additional information on the Corps of Engineers permitting requirements. Review Chapter 1, Federal Approval Process and Authorizing Actions section, and Chapter 2, Special Areas Construction section for River and Stream Crossings in this final EIS.

AU-09 Comment: The construction of the pipeline including excavation, sidecasting of the excavated material, and installation of the pipe may be authorized by nationwide general permit 12, provided TransColorado adheres to the terms and conditions of the nationwide permit. (71)

Response: See response to AU-07.

AU-10 Comment: If mechanized land clearing or the deposition of dredged or fill material is necessary during ROW construction, an individual Corps of Engineer permit or approval under nationwide general permit 26 will be required, rather than a nationwide permit 12. (71)

Response: These Corps of Engineers stipulations will be addressed in TransColorado's Nationwide Permit Application to the Corps of Engineers.

AU-11 Comment: The Federal Government has committed significant resources to natural gas production that pre-authorizes a pipeline similar to the TransColorado proposal. This should be discussed in the No Action Alternative. (89)

Response: The natural gas supply and demand section located in Chapter 1 of the EIS addresses this issue.

AU-12 Comment: The EIS should list the nationwide permits that would be required and show how the conditions specific to those permits would be met. (86)

Response: The EIS text has been revised to indicate that it is expected that pipeline construction would be covered by Nationwide permits 12 or 26 in Colorado and by regional or individual permits in New Mexico (See Chapter 1, Federal Approval Process and Authorizing Actions section).

AU-13 Comment: The City of Grand Junction will want to review TransColorado's NPDES stormwater discharge permit application to the Colorado Department of Health. This permit, which requires detailed information on the handling of stormwater discharges during and after construction, should be listed in Table 1-3. (86)

Response: An NPDES permit for stormwater discharge will be obtained for the pipeline project, by TransColorado. The permit application will be available for review from the appropriate Colorado Department of Health office. This permit was also added to the Authorizing Action list in Table 1-3.

AU-14 Comment: The EIS should note on Table 1-3 that a permit would be required to cross the Mesa Verde waterline ROW. (93)

Response: Table 1-3 has been modified to show that a permit is required to cross the Mesa Verde waterline ROW.

AU-15 Comment: Table 1-3 should be changed to show that the Colorado DOW would grant a ROW permit across only those lands administered by CDOW.

Response: Table 1-3 has been revised to so indicate.

CULTURAL RESOURCES

CU-01 Comment: The draft EIS reveals there are 61 sites within the ROW that are potentially eligible or eligible for listing on the National Register of Historic Places. Before this project proceeds under nationwide permit authorization, we must receive clearance from the State Historic Preservation Officer that the discharges will not adversely effect any sites eligible for listing or sites listed on the National Register of Historic Places. (71)

Response: A Class III cultural resource inventory on 72 percent of the final EIS agency preferred route shows 84 sites to be eligible for listing on the National Register of Historic Places (NRHP). This inventory was conducted following publication of the draft EIS (see Chapter 3, Cultural Resources).

A proposed cultural resources treatment plan has been prepared for cultural resources based on the incomplete inventory of the final EIS agency preferred route. The proposed treatment plan has been submitted to the Colorado and New Mexico State Historic Preservation Officers (SHPOs) and the Advisory Council on Historic Preservation (ACHP). Both the Colorado and New Mexico SHPOs and ACHP agree with the philosophy in the treatment plan and request they be kept involved in the treatment and research design of the cultural resource sites. This includes involvement of any new cultural resource sites discovered as a result of remaining inventories along the final EIS agency preferred route. The two SHPOs and the ACHP letters are included in Appendix F of this final EIS. The BLM and USFS will not make a decision regarding the project and no RODs or any subsequent ROW grant will be issued until the SHPOs, ACHP, and FERC concur with the final treatment plan.

CU-02 Comment: The EIS needs to state whether archaeological surveys are required on private lands. (83)

Response: The draft EIS text has been revised to indicate that archaeological surveys will be required on private lands. See changes to Table 2-13 (Table 2-8 in draft EIS) and the new environmental protection measures that have been added for private and state lands that are presented in Table 2-14 in this final EIS.

CU-03 Comment: The EIS needs to disclose the impacts on archaeological sites in Montezuma and Dolores Counties, especially in the Cahone and Cross Creek region. (84)

Response: Based on the partial Class III inventory information, it appears that 15, or 15 percent, of the 84 eligible sites can be avoided. Appendix F recommends excavating 30 percent of the eligible sites that cannot be avoided. However, because of the importance of the Cahone and Cross Creek region, the regional project-specific design for this area may recommend excavating more than 30 percent of the sites.

See also response to CU-01 which states that SHPO, ACHP, and FERC concurrence must be received on the cultural resource treatment plan prior to making a decision and prior to issuing the BLM and USFS RODs and any subsequent ROW grant. Response CU-01 also indicates that the SHPOs and ACHP agree with the proposed treatment of cultural resources and request they be kept involved in the decision-making process.

ECONOMICS

EC-01 Comment: The Southern Ute Indian Tribe believes the draft EIS failed to address the adverse economic impacts of the proposed project on gas producers in the San Juan Basin and the Southern Ute Indian Tribe and that to deny that harm will be inflicted upon the Tribe is disingenuous. (15, 38, 84)

Response: For the Proposed Action, the Chapter 4 Socioeconomic Impacts, Natural Gas Markets and Pipeline Capacity section in the final EIS has been revised to provide a more detailed explanation of the relative economic impacts of the proposed project on San Juan Basin gas producers, interstate pipelines and the Southern Ute Indian Tribe.

EC-02 Comment: The draft EIS misstated the existing capacity of the El Paso pipeline. It is not that additional TransColorado gas would fill the pipeline to capacity but rather that the El Paso pipeline is already filled to capacity. (15)

Response: For the Proposed Action, the Chapter 4 Socioeconomic Impacts, Natural Gas Markets and Pipeline Capacity section in the final EIS has been revised to provide a more detailed explanation of the relative economic impacts of the proposed project on San Juan Basin gas producers, and existing interstate pipelines.

EC-03 Comment: The current capacity to transport gas out of the San Juan basin has a shortfall of .619 BCF per day. TransColorado will increase the shortfall to .919 BCF per day. (39, 84)

Response: For the Proposed Action, the Chapter 4 Socioeconomic Impacts, Natural Gas Markets and Pipeline Capacity section in the final EIS has been revised to provide a more detailed explanation of the relative economic impacts of the proposed project on San Juan Basin gas producers and pipeline capacities. See also response to EC-02.

EC-04 Comment: TransColorado pipeline is not going to take gas to California. It's going to take gas to those already over-subscribed interstate pipelines and exacerbate the problem. (38)

Response: In the Purpose and Need section in the final EIS indicates that the applicant states that "...purpose of the proposed TransColorado Gas Transmission Project is to provide a regional natural gas transmission system to transport natural gas from the Western Slope of Colorado and the Rocky Mountain region to major interconnections with other interstate pipelines for ultimate delivery to Southwest, Midwest, and California markets." For further discussion on the San Juan Basin pipeline capacity issue, please refer to response to EC-01.

EC-05 Comment: The draft EIS grossly underestimates the productive capacity of wells in the San Juan Basin. (38)

Response: For the Proposed Action, the Chapter 4 Socioeconomic Impacts, Natural Gas Markets and Pipeline Capacity section in the final EIS has been revised to provide a more detailed explanation of the relative economic impacts of the proposed project on San Juan Basin gas producers, including the Southern Ute Indian Tribe.

EC-06 Comment: The draft EIS grossly misstates information supplied to the BLM by Jerry Bruner by a factor of 20. Drafters have garbled information about productive capacities from wells located in different areas of the San Juan Basin in a way that renders the analysis incomprehensible. (15)

Response: For the Proposed Action, the Chapter 4 Socioeconomic Impacts, Natural Gas Markets and Pipeline Capacity section in the final EIS has been revised to provide a more detailed explanation of the relative economic impacts of the proposed project on San Juan Basin gas producers, including the Southern Ute Indian Tribe.

EC-07 Comment: What are the socioeconomic impacts of gas fired steam generated electricity replacing coal fire steam generated electricity in terms of losses in jobs, taxes, and royalties. Specifically, what are the effects on San Juan County, New Mexico, and the Navajo Tribe in San Juan County, New Mexico? (1)

Response: The economic effects of more abundant and less expensive natural gas on other industries and markets are beyond the scope of this EIS. As indicated in Chapter 1, Purpose and Need of the final EIS, the FERC, which has the responsibility to regulate interstate natural gas transmission, developed its optional certificate program in order to meet the following goals:

- to provide the full benefits of competition to consumers by facilitating easier access to services;
- to ensure the most efficient scale for facilities by removing certification as a barrier to entry; and
- to provide incentives for competition, where none exists, by maximizing the use of alternative market access for producers and consumers.

EC-08 Comment: Both the agency preferred and proposed (Alternate J) routes in the Mancos Valley would have negative effects on county revenues. The pipeline will lower the current or future value of residential properties and result in a tax loss. Pipeline crossing farm and ranch land will be on low value land and provide a very low property tax to counties. (52, 74)

Response: The Socioeconomic analysis of the Proposed Action located in Chapter 4 of the final EIS has been revised to indicate methods used to assess effects to land values. Potential impacts to property resale values are also discussed. County assessors do not generally consider the existence of pipelines during assessment; therefore, county tax revenue is not likely to decrease. County revenues could increase as the pipeline easement would be effectively double taxed; the pipeline company is taxed for the pipeline and the landowner is taxed at the land use rate.

EC-09 Comment: The proposed route in Montezuma County (Alternate J) will cause potential home buyers in the Summit Ridge area to buy property in other counties and deprive Montezuma County of future economic growth. (52, 74)

Response: The Summit Lake residential area is located near the shores of Summit Reservoir, in the area between Summit and Puett Reservoirs, and on the east side of Summit Reservoir. These areas are south of Highway 184 and are at their closest, 0.25 mile from the proposed route of the TransColorado Pipeline. The pipeline does cross one 40-acre, one 60-acre, and three 35-acre parcels in the Summit Ridge area. The areas crossed by the proposed pipeline were not subdivided under County subdivision regulations and as such have not been reviewed by County officials. These lots were created under state legislation which permits subdivision of land into

parcels not less than 35 acres. The Chapter 3 Private Lands section of the draft EIS has been revised to clarify impacts to private landowners in this area and is presented in this final EIS.

In regards to the comment on a 50 percent development reduction, that is a subjective statement. There is no way to substantiate a 50 percent reduction in building or the stagnation of the Summit area community. The pipeline would not visually impair many parcels due to the heavy ground cover, and the pipeline would be located within Lost Canyon, which would further screen it from view from the Summit Ridge and Summit Lake communities.

EC-10 Comment: The proposed route (Alternate J) would destroy the Summit Lake retirement community. (52)

Response: The proposed route (Alternative J) would not cross the Summit Lake retirement community as described by the County Administrator (Weaver 1992). The pipeline would not visually impact the Summit Lake retirement community, as the area is heavily wooded and would not afford visual impacts to the development. In addition, a substantial portion of the pipeline route is located at a lower elevation out of sight from the community in Lost Canyon. Impacts of the pipeline would be contained on the parcels immediately adjacent to the pipeline and therefore may impact the development of these areas. According to County Administrator Weaver, the land was subdivided by the landowner into 35-acre parcels or larger and was not reviewed by the County.

EC-11 Comment: What are the cumulative effects to private land owners along the pipeline corridor who already have existing ROWs on their property? (8, 74, 78, 81)

Response: See response to EC-08. As evidenced by the numerous comments both at scoping meetings and in written format, there has been and would be definite adverse social impacts associated with the planning and construction of the TransColorado Pipeline. In fact, the proposal itself has been a social impact, requiring an unusual level of involvement by citizens and resulting in a high level of concern in areas where the pipeline has caused a controversy. The Proposed Action section in Chapter 4 of the final EIS has been revised to further address adverse social impacts from the proposed project. These data offer a qualitative look at the social impacts that would be associated with the construction of 129 miles of the proposed route on private lands.

EC-12 Comment: The number of people affected by a given route is not limited to ownership. The draft EIS says only 40 people would be affected. (20)

Response: The Air Quality and Noise impacts section in Chapter 4 of the final EIS has been revised to clarify that 42 residences on the route and 40 residences on the agency preferred route are located within 500 feet of the pipeline ROW. Potential noise impacts to these individuals are discussed. Please refer to this final EIS section and to the response to EC-11 for additional discussion on pipeline impacts to the human environment.

EC-13 Comment: The TransColorado pipeline would preclude future development of private property and deprive existing private property owners of future increases in land values. (2, 23, 53, 60, 96)

Response: See responses to EC-08 and EC-11 for additional information on property values and impacts to private landowners.

EC-14 Comment: What will the pipeline do to the value of private lands? (1, 85)

Response: See responses to EC-08 and EC-11 for additional information on property values and impacts to private landowners.

EC-15 Comment: The proposed TransColorado pipeline would devalue the private land. (18, 85)

Response: See responses to EC-08 and EC-11 for additional information on property values and impacts to private landowners.

EC-16 Comment: The comment presented evidence that a pipeline or powerline has a decidedly adverse impact on private land values. (59)

Response: See responses to EC-08 and EC-11 for additional information on property values and impacts to private landowners.

EC-17 Comment: Strongly disagrees with the statement on page 169 of the draft EIS that, "The presence of the pipeline would generally not impact the property valuation unless the ROW presence rendered the entire property economically or functionally obsolete." (59)

Response: See responses to EC-08 and EC-11 for additional information on property values and impacts to private landowners.

EC-18 Comment: The pipeline company should pay fair compensation, which could be an annual fee or continuing compensation to land owners for transmission of gas across their property. (14, 42, 47, 55, 73, 83, 85)

Response: As stated in the Scoping section of the draft EIS, the issue of the fairness of eminent domain (condemnation of a ROW easement and determination of fair market value for that ROW) and the easement acquisition process, including compensation between the pipeline company and the private landowner, is beyond the scope of this document. See Chapter 1, Issues Considered but Eliminated from Detailed Analysis, Fairness of Eminent Domain, in the final EIS and the response to EM-02 for additional information on just compensation to the landowner.

EC-19 Comment: Utility lines should not be placed on private property for the convenience of a corporation without fair compensation to the land owner. (5, 53)

Response: See response to EC-18 regarding the issue of eminent domain and response to EM-02 for additional information on just compensation.

EC-20 Comment: Housing needs for pipeline construction crews may exceed the capacity of Durango. Should temporary housing be supplied for this labor force by TransColorado? (32)

Response: The Socioeconomic Conditions, Housing section in Chapter 3 and the Socioeconomic Impact section for project construction in Chapter 4 of the final EIS identify the housing shortage in Durango. The EIS states that more abundant temporary housing would be available in nearby communities (Cortez, Farmington).

EC-21 Comment: The socioeconomic section of the draft EIS is inadequate because it does not display the human and emotional effects on pipeline intrusions on private property owners. (58)

Response: See response to EC-11.

EC-22 Comment: Have the aesthetic, environmental, and economic impacts been evaluated? (51)

Response: Route selection has been guided by efforts to place the pipeline alignment in or parallel to existing utility corridors or roads, while minimizing aesthetic (noise, visual cultural, and religious) impacts; environmental (soil, water, air, wildlife, vegetation) impacts; and economic (county revenues, employment, housing and social) impacts to landowners. Property land uses were assessed and alignments of the various routes have been adjusted so as to avoid displacing residents and other structural improvements as well as avoid significantly populated areas where possible. Descriptive tables in Chapter 2 of the final EIS (Tables 2-1, 2-4, 2-7, 2-9, 2-15, 2-16 and 2-18) indicate occurrence of the differing categories of land ownership, number of residences within 100 and 500 feet of the ROW, farmland crossed, rangeland crossed, timber land crossed, livestock allotments, and wildlife range.

EC-23 Comment: The pipeline will ruin the Avalon Mesa development and further decimate the Lone Cone region. The pipeline will both visually and economically harm the entire region. (66)

Response: The final EIS agency preferred route has been realigned and no longer passes through the Avalon Mesa subdivision. See responses to EC-08 and EC-11 for additional information on property values and impacts to private landowners.

EC-24 Comment: The draft EIS lacks a 50-year market analysis to demonstrate the project actually has a 50-year life. (1)

Response: The 50-year life mentioned on page 47 in the draft EIS is used only for general discussion purposes. As indicated, the actual life of the project will depend on other gas transportation projects, natural gas supplies, natural gas demand, and market prices. The actual life of the project does not play a significant role in the discussion of project impacts. Long-term impacts will be similar for 5, 10, 20, and 50 years.

EC-25 Comment: The fact that the El Paso system has no excess capacity has escaped serious consideration in the draft EIS. (15)

Response: See response to EC-01.

EC-26 Comment: Dolores County will greatly benefit from the proposed TransColorado route that best serves the interests of all landowners and sensitive environmental issues. (70)

Response: The socioeconomic analysis presented in the draft EIS focused on the general economic impacts, both positive and negative, across the counties involved. Table 3-9 in the draft EIS indicates that Dolores County had the lowest assessed valuation of the 10 counties analyzed. As such, any portion of the pipeline or any one of the compressor stations constructed in that county would result in increased valuation and therefore, increased property tax revenue to the county. For the Proposed Action, the Socioeconomic taxes and fees section in the draft EIS indicates that first year property tax revenues for all ten counties crossed by the pipeline project would total $4.2 million dollars (1991 $). Increased property tax revenue is an economic benefit of the project.

EC-27 Comment: The pipeline will affect development of the Summit Lake area. (74)

Response: See responses to EC-08, EC-09, and EC-11.

EC-28 Comment: In the Summit Lake area, the proposed project will affect construction of new housing that is becoming a major source of tax revenue for the county. New residents (especially retirees who are purchasing and building in this area) support a very broad base of goods and services to support other residents of the county. (74)

Response: See response to EC-09.

EC-29 Comment: Schools will not be affected by the construction phase of the proposed project. (89)

Response: The Socioeconomic Impacts section for the Proposed Action in Chapter 4 has been revised to clarify that no impacts to school services are anticipated.

EC-30 Comment: The draft EIS lacks an analysis of the cumulative social and economic impacts of the pipeline corridor on private landowners with varying sizes of land parcels. (78)

Response: See responses to EC-08 and EC-11.

EC-31 Comment: The draft EIS needs to discuss the long-term impact on communities and private land owners for visual resource loss. (78)

Response: See responses to EC-08 and EC-11.

EC-32 Comment: The EIS needs a detailed financial feasibility study stating entities served, the gas sources that would be tapped, and why the region needs a second pipeline. (84)

Response: In its December 20, 1990, "Preliminary Determination on Non-Environmental Issues" concerning the TransColorado Project, the FERC determined that the TransColorado proposal is required by the public convenience and necessity. Any further consideration of these non-environmental issues should be brought before the FERC in its continued proceeding in the TransColorado proposal. See response to PUR-02.

EC-33 Comment: Table B-3 in the draft EIS does not present a true picture of the number of people that could be affected by the project. (77)

Response: See response to EC-11 for additional information on adverse social effects.

EC-34 Comment: The EIS should describe the character of the private land. (77)

Response: See responses to EC-08 and EC-11.

EC-35 Comment: The Mancos Valley East Variation would cause the more economic impacts to private property owners in the Dolores Valley than other routes. (77)

Response: From analysis of the various Dolores River crossings, the anticipated economic impacts to private landowners are expected to be similar. The Dolores River floodplain (canyonwall to canyon wall) is privately owned at all three crossings. land use is similar at the three crossings, consisting of rural residential uses, with some irrigated pastureland.

EC-36 Comment: The EIS needs a more detailed socioeconomic analysis of impacts to local jurisdictions created by the construction workforce and all related service personnel. (83)

Response: See response to EC-20 and EC-26.

EC-37 Comment: The EIS needs an economic analysis comparing the Wright's Mesa route and the route near Redvale and Dry Creek Basin. (84)

Response: See responses to EC-08 and EC-11.

EC-38 Comment: The EIS needs to quantify the loss of royalties as a result of switching from conventional gas to coalbed methane. (85)

Response: The decision on whether or not coalbed methane and other unconventional gas sources should be developed and promoted was made by the U.S. Congress in 1990, when they extended the Section 29 tax credit for drilling these unconventional sources to the end of 1992. Economic analysis of such incentives is beyond the scope of this EIS.

EC-39 Comment: The EIS needs to consider whether present taxes from motor fuel would be sufficient to meet the needs of maintenance required because of increased traffic flows and to accommodate any additional road construction. (85)

Response: TransColorado does not plan to construct any new roads. The costs of repair and maintenance of existing federal, state, and county roads during construction will be born directly by TransColorado, as indicated by their commitment described under Transportation Requirements in Chapter 2 of the EIS.

EC-40 Comment: Construction of Alternate J would leave us with two unusable triangular pieces of property. (74)

Response: See comment RT-01.

EC-41 Comment: If the Mancos Valley East route is used, the pipeline will pass through the Four Corners Youth Encampment. We think a pipeline going through this property would have more impact on people than all the other variations in Montezuma County combined. (77)

Response: While it is possible that pipeline construction would cause a short-term disruption to summer camp activities, no long-term effects on land uses for this purpose are expected because the pipeline will cross property sold by the church and no longer intended for primary camp activity (Weaver 1992).

EC-42 Comment: No effort is made to address the long-term loss to communities for visual resource loss or to land owners for property value reduction. (92)

Response: It cannot be verified that the visual changes identified from this project directly result in a decrease in property values.

EMINENT DOMAIN AND NEGOTIATED ROW

EM-01 Comment: FERC and BLM have a God-like power. They can condemn our private property, and we have little power or resources to stop them. (1, 6, 8, 53, 78)

Response: The draft EIS text has been revised to provide an in-depth discussion on eminent domain in the Fairness of Eminent Domain section in Chapter 1 of the final EIS. Please review the positions presented for FERC and BLM with respect to this issue.

EM-02 Comment: The discussion on easement acquisition on private lands is incomplete because you fail to discuss the darker side of easement procurement, that is, condemnation. On page 26 of the draft EIS, you state that discussing the fairness of eminent domain is outside the scope of an EIS. I disagree. Since you have brought up the issue of private easement procurement, you must at least discuss the need for, the process, and the effects of eminent domain and condemnation of private lands. (1, 78, 92)

Response: See response to EM-01. The fairness of the federal power of eminent domain has been determined by the judiciary branch of the United States Federal government. An EIS is an inappropriate forum to further debate the fairness of this power (see Chapter 1, Issues Outside the Scope of Final EIS, Fairness of Eminent Domain, presented in this final EIS).

In answer to the concern about the easement acquisition process, a section has been added to Chapter 1 of the EIS (see Easement Acquisition Process section in the final EIS) to explain FERC and BLM perspective on this process.

EM-03 Comment: A new executive order requires all federal agencies to minimize taking by eminent domain. (43)

Response: Section 7(h) of the Natural Gas Act, which grants the power of eminent domain to a holder of a Certificate of Public Convenience and Necessity, provides that this condemnation power shall be exercised through the courts. In cases where this formal use of the power of eminent domain is necessary, the courts have the authority to ensure that just compensation is made for that which is taken. These procedures are consistent with the meaning of Executive Order 12360 by providing an orderly process for the paying of just compensation. See responses to EM-01 and EM-02 for additional information on the eminent domain issue.

ENFORCEMENT OF PROTECTION MEASURES ON PRIVATE LANDS

EN-01 Comment: Private land owners do not have the power to enforce agreements regarding successful rehabilitation and compliance with mitigation on private lands. (6, 7, 8, 9, 11, 12, 17, 24, 40, 41, 44, 48, 55, 59, 78)

Response: An environmental protection measures table for private lands and a discussion describing monitoring and compliance has been added to the final EIS. See Table 2-14 in the Environmental Protection Measures and the Monitoring and Compliance Sections in Chapter 2 of this final EIS.

TransColorado has received preliminary approval from FERC through the granting of the Certificate of Public convenience and Necessity based solely on non-environmental issues. This preliminary determination was followed by an environmental review under NEPA in order to comply with the requirements for the final FERC decision. If TransColorado obtains a final order approving the requested Certificate of Public Convenience and Necessity from the FERC authorizing the construction and operation of the project, TransColorado would be required to implement all mitigation which is part of the FERC Certificate for the entire length of the pipeline. The FERC is acting as a cooperating agency in preparation of this EIS and plans to adopt the EIS and environmental protection measures contained in the EIS. If adopted, the environmental protection measures would be attached to the FERC certificate. Additional stipulations to further reduce or eliminate impacts to private land owners may be also be attached to the FERC order.

The FERC staff would monitor TransColorado's compliance with the Certificate conditions and act on public complaints regarding improper construction and restoration practices. In the event TransColorado fails to comply with any FERC Certificate conditions, they may be held liable for enforcement actions taken by the FERC under the appropriate provisions of its regulations.

EN-02 Comment: The federal government has the power to force different pipeline companies to use the same working space and to place pipelines closer together, limiting the width of the pipeline corridor on private lands. (59)

Response: Although TransColorado has proposed to construct its pipeline in a 75-foot-wide ROW (which is the standard width used for the diameter pipe in question), approximately 60 percent of the proposed route is adjacent to existing utility ROWs. TransColorado has committed to minimizing impacts on previously undisturbed areas by locating its temporary ROW on existing ROWs, wherever possible.

Also, TransColorado would consult with individual property owners to develop mitigation measures on a site-specific basis as part of the easement negotiation process. The techniques agreed upon would be incorporated into the individual's easement document, as well as the construction specifications.

EN-03 Comment: Federal agencies can dictate mitigation of damages or refuse to grant a ROW. Private landowners are left to negotiate as best they can. (53)

Response: See response to EN-01. This EIS process was used to determine the potential environmental effects of constructing and operating the TransColorado project. During this process, the comments and concerns of both public and private groups and individuals were solicited to assist us in formulating mitigation to minimize the expected impacts on the human environment. All substantive comments have been considered and, where appropriate, mitigation was developed as a result. TransColorado has already committed to many of these measures and others will be required as terms of the FERC Certificate of Public Convenience and Necessity (see Table 2-14 in the final EIS). Therefore, the private landowners have the environmental protection measures contained in the final EIS as a minimum level of protection as well as any additional site-specific conditions negotiated into individual easements.

EN-04 Comment: Who protects private landowners? BLM is protecting its rights. BLM and Forest Service are protecting National Forest Lands. Indian autonomy protects their lands. But who protects us from our government? (17, 60)

Response: See responses to EN-01 and EN-03 regarding protection for private landowners.

EN-05 Comment: There are several protection measures that federal agencies could require and/or TransColorado could commit to that would improve chances of a successful negotiated ROW agreement with private landowners thus avoiding condemnation court. Examples include: (1) locating the pipeline on federal lands as much as possible, (2) notifying in writing every potentially affected landowner as soon as possible, (3) making available to the public accurate maps of land ownership in and around the proposed pipeline corridor, (4) increasing the amount of compensation paid to include such items as landowner's personal time and attorney's fees, (5) re-negotiating compensation annually based on changes in land values, (6) standardizing and guaranteeing payment for damages to property outside the ROW and placing the burden of proof on the condemnor rather than the landowner, (7) finding alternate methods of negotiating compensation such as lease or license arrangements, (8) granting incremental increases in compensation for each additional project placed in a corridor across the private property, (9) bonding of contractors and subcontractors with penalties payable to landowners to ensure disturbed land is reclaimed to an equal or higher condition or use, (10) limiting the length and time of access included in the ROW agreement, (11) enforcing federal protection of private property rights where such enforcement authority exists, (12) designing projects so that other projects could be built within the same ROW, (13) delaying ROW surveying until the need for the project has been established, (14) ensuring reclamation standards on private land are as stringent as those on public land, and (15) prohibiting companies and their subcontractors from entering private property for non-business purposes. (85)

Response: The BLM recognizes that the easement negotiation process can be difficult and complicated. Compensation issues are between the landowner and the project sponsor, however, and the federal agencies may not intervene. Landowners might find these suggestions helpful when considering points of negotiation. Also, see responses to EM-01, EN-02, and EN-03 regarding private landowner concerns.

EN-06 Comment: We are concerned about the often illegal surveying that has taken place on private property. (84)

Response: Comment is noted. Incidences of unauthorized entry to private property should be reported to the proper law enforcement authorities. TransColorado maintains that no illegal surveying has occurred on this project.

EN-07 Comment: The general protection measures and FERC requirements should be guaranteed to landowners. (78, 83)

Response: Comment is noted. Please see responses to EN-01 and EN-03.

EN-08 Comment: The EIS is inadequate because it does not thoroughly and completely analyze impacts on private lands and adequately mitigate impacts. (78)

Response: See responses to EN-01, EN-03, EC-08, and EC-11.

EN-09 Comment: The general protection measures need to address the crossing of irrigation ditches. (88)

Response: The environmental protection measures in Chapter 2 of the draft EIS have been expanded to include private and state lands, which are presented in Table 2-14 of the final EIS. Irrigation ditches are addressed in the Agricultural Lands section of this new table.

EN-10 Comment: More analysis is needed on the impacts to private lands. (78)

Response: See responses to EN-01, EN-03, EC-08 and EC-11.

EN-11 Comment: TransColorado should be required to supply copies of protection measures on private property and any FERC certificate requirements to affected land owners. (78)

Response: A list of the environmental protection procedures that would be implemented on private lands is printed in Table 2-14 of the final EIS, which will be supplied to each of the affected landowners. Also, see responses to EN-01 and EN-03.

Should the FERC issue TransColorado a certificate authorizing construction and operation of the proposed project, the FERC's final order will be made available to the public upon request from the FERC's Division of Public Information, Room 3104, 941 N. Capitol St., N.E., Washington, D.C. 20426. Requests for a copy of the FERC's final order in this proceeding should reference Docket No. CP90-1777-000.

EN-12 Comment: Private landowners need a process by which they may present their complaints. (78)

Response: See responses to EN-01 and EN-03. In the event that an affected property owner is concerned that the contractor is not complying with either the protection measures required in TransColorado's permits and/or the easement agreement, the environmental inspector should be made aware of the problem. If the contractor continues to disregard the required measures, the property owner should telephone TransColorado. TransColorado will have a representative assigned to hear and respond to landowner complaints.

During Construction Contact:

TransColorado Lead ROW Agent
TransColorado ROW Office
715 Horizon Driver, Suite 401
Grand Junction, CO 81506
(303) 241-1968
(800) 255-3450

During Operation Contact:

1. Grand Junction Area
   TransColorado c/o WestGas
   Grand Junction Operation Manager
   2478 Industrial Blvd.
   Grand Junction, CO 81501
   (303) 245-2520
2. Durango Area
   TransColorado c/o Westgas
   Durango Operations Manager
   26266 Highway 160
   Durango, CO 81301
   (303) 247-5754/1-800-255-3450

Should the incidence of noncompliance persist, the property owner is encouraged to notify the FERC, Environmental Compliance and Project Analysis Branch. Any related communication should specify the TransColorado Pipeline Project FERC Docket No. CP90-1777-000.

EN-13 Comment: The EIS should identify the protection measures that will be required on private lands with an emphasis on avoiding impacts. (85)

Response: See responses to EN-01 and EN-03 and Table 2-14 in the final EIS.

FARM AND RANGELANDS

FA-01 Comment: Land contours change after the installation of pipelines, making irrigation very difficult. After the backfilled trench settles, it either humps or sumps. Irrigation water leaves the ditch and follows the pipeline at ditch crossings. (24, 44, 53)

Response: Land contours may change after installing a pipeline, which can affect the movement of irrigation water. The protection measures listed under Prime and Unique Farmlands in Table 2-7 of the draft EIS states that agricultural land will be returned to its original condition, as requested by the landowner. This information has been revised and summarized in Table 2-14 presented in the final EIS that contains these protection measures applicable to agricultural land. Also, see responses to EN-01 and EN-03 for additional information on environmental protection measures for private lands.

FA-02 Comment: Pipeline construction leaves behind lots of rocks, reducing productivity and interfering with haying operations. (53)

Response: See response to FA-01 and Table 2-14 in this final EIS, regarding agricultural protection measures.

FA-03 Comment: The draft EIS states the loss of production is for only 1 or 2 growing seasons and that it is a short-term problem. The commentor disagrees with this statement and feels that it is not a short-term problem. (42, 44)

Response: Additional clarification regarding the duration of impacts to agricultural crops is provided under impacts to prime and unique farmlands for the Proposed Action in Chapter 4 of both the draft and final EIS. Annual crops such as grains would recover in one growing season. Perennial crops such as hay, grasses, and alfalfa would be taken out of production for two growing seasons. The duration of impacts would be considered short-term, since production would be returned in 1 or 2 years.

FA-04 Comment: Pipeline construction destroys canyon walls which are natural barriers to livestock. Fences must then be constructed to control the livestock, and these fences must be maintained. (65)

Response: Pipeline construction could alter some canyon walls, which are used as natural barriers for livestock by ranchers. If requested by the landowner, fencing would be added to areas where canyon walls were altered. This issue is covered by the protection measures presented under Prime and Unique Farmlands in Table 2-7 of the draft EIS and Table 2-14, Agricultural Lands, in the final EIS. Also, see responses to EN-01 and EN-03 regarding protection of private lands.

FA-05 Comment: Livestock fences are weakened where pipelines cut through them. (53)

Response: Livestock fences could be weakened where the pipeline corridor crosses. See response to FA-04 for additional information on landowner protection measures.

FA-06 Comment: The commentor disagrees with the draft EIS statement that there are no prime lands and no lands of national concern. (34)

Response: The draft EIS states that approximately 82 acres (9 miles crossed) of prime farmland and 109 acres (12 miles crossed) of farmlands of statewide importance would be disturbed by pipeline construction for the Proposed Action in Chapter 4.

FA-07 Comment: Pipeline construction permanently removes trees, which provide shelter for our livestock. (53)

Response: Pipeline construction would remove some large trees, which provide shelter for livestock. If requested by the landowner, trees would be replaced after construction. This issue is covered by the protection measures presented under Prime and Unique Farmlands in Table 2-7 of the draft EIS and Table 2-14 in the final EIS. Also, see responses to EN-01 and EN-03.

FA-08 Comment: Agriculture is given unequal treatment in the draft EIS. (34)

Response: The comment is noted. Agriculture was given the same level of analysis in the draft EIS as other environmental resources.

FA-09 Comment: In the Mancos Valley area, the TransColorado proposed route will go through 80 acres of my property and make it nearly impossible to irrigate. (67)

Response: In referring to the resource inventory maps, the TransColorado proposed route would cross about 80 acres of Jesse West's property near Cortez. The protection measures listed in Table 2-14 of the final EIS for agricultural lands would be used to return the land to its original condition. Monitoring would be done after construction to ensure that the protection measures are followed. Also, see responses to EN-01 and EN-03 regarding environmental protection measures for private land.

FA-10 Comment: Potential impacts to the Sommerville Ranch operations need to be addressed. (86)

Response: Expected general impacts to ranch and farm operations are discussed in the final EIS. The protection measures listed in Table 2-7 of the draft EIS and Tables 2-12 and 2-14 of the final EIS for agricultural lands and livestock grazing would be used to return the land to its original condition. Also, see responses to EN-01 and EN-03.

FA-11 Comment: The EIS does not identify all impacts to agricultural lands. (88, 96)

Response: The comment is noted. The draft EIS attempted to acknowledge the expected impacts to agricultural lands that were identified by citizens during the scoping process. The final EIS has been revised to include Table 2-14 that describes committed environmental protection measures on agricultural lands.

FA-12 Comment: A utility corridor in the Norwood area would take a lot of irrigated land out of production. (96)

Response: This EIS does not analyze impacts from a utility corridor on private lands in the Norwood area. In addition, this proposed pipeline would not take irrigated lands out of production for more than 2 years. A short-term loss of production for land crossed is mentioned in Chapter 4 of the draft EIS under impacts to prime and unique farmlands. Each farm/ranch operator would be individually compensated for the loss of crop production, as indicated in Table 2-7 of the draft EIS and Table 2-14 of the final EIS.

FISHERIES

FI-01 Comment: The commentor disagrees with the statement that "no measurable effect would be expected on juvenile and adult fish." Several weeks of increased sedimentation could have great effects. (32)

Response: The impact discussion for fisheries begins by stating that increased sedimentation and habitat alteration would decrease aquatic communities. However, the magnitude of the impacts are considered minor because of the short-term duration of impacts and the absence of critical spawning or rearing areas for fish immediately downstream of the proposed crossings. Fish numbers could be temporarily reduced as some adults and juveniles avoid the area. Based on a review of suspended sediment effects on fish populations by Loyd (1985), the response by fish usually is reduced feeding or other physiological stresses rather than mortalities. These sublethal effects would be expected to subside within weeks after the construction is completed. Sediment deposited downstream from the crossing would be resuspended, along with naturally occurring sediment, during the next period of high discharge. See the Chapter 4, Proposed Action, Impacts to Fisheries section in the final EIS.

FI-02 Comment: The statement on page 94 of the draft EIS is contradicted by the statement on page 164. What mitigation is planned for this impact and subsequent loss. We believe sedimentation to have an effect for a considerable distance below the disturbed site. (32, 64)

Response: The summary statement for fishery impacts on page 94 of the draft EIS is the same conclusion described on page 164. The information presented under fisheries impacts provides the basis for the conclusion. Please refer to the protection measures listed for surface water quality in Tables 2-12 and 2-14 of this final EIS, which would also be used to minimize impacts on aquatic communities. Protection measures for threatened and endangered fish species are also listed in these tables.

FI-03 Comment: Regarding Number 23 in Table 2-7 of the draft EIS, terminology within the report should be standardized between "important" and "significant" fisheries. What is the difference, and does this really have a bearing on the meaning? (64)

Response: This protection measure (Table 2-12) for stream crossings has been revised in the final EIS to apply to streams considered an "important" fishery. The term important fishery represents a stream containing species with threatened or endangered status or recreational value.

CHAPTER 5

GENERAL

GE-01 Comment: In the Uncompahgre Basin Resource Area (Colorado) section in Chapter 1 of the draft EIS, reference is made to the San Juan/San Miguel RMP, but no stipulations are mentioned. The reference implies that there should be some stipulations. The stipulations are actually in the San Juan RMP. The stipulations should apply to the appropriate RMP. (27)

Response: Both the Uncompahgre Basin and the San Juan/San Miguel RMPs have stipulations. The applicable stipulations are included in Chapter 2, Table 2-13, of this final EIS.

GE-02 Comment: We believe the EIS is merely a formality to justify a BLM/USFS decision that has already been made. (1, 20)

Response: The BLM and USFS are considering the environmental impacts, public comments, and other information such as the other federal agencies' requirements for permitting the TransColorado pipeline in this final EIS. The BLM and USFS will use this information in making their decision on whether or not to authorize a ROW grant to TransColorado.

GE-03 Comment: Routes that were eliminated from detailed analysis should be identified in the EIS with a brief explanation of the reasons for their elimination. (86)

Response: The final EIS has been revised to include this information. See the revised Route Selection Process section presented in Chapter 1 in this final EIS.

GE-04 Comment: Short-term, construction-related impacts have not been adequately addressed in the draft EIS. Specifically for the property owned by the City of Grand Junction. The City of Grand Junction would like a detailed analysis of impacts to the City. (36, 86)

Response: The draft EIS has been expanded to describe short and long-term impacts of the pipeline on the Grand Mesa visual resources (see Chapter 4, Impacts to Visual Resources). An additional visual simulation has been added to the final EIS from several vantage points in the Grand Valley to simulate the project on the Grand Mesa, and impacts have been described in greater detail.

GE-05 Comment: The document has been prepared with the emphasis being placed on the environment. There should be equal emphasis placed on the appropriate identification of the entities referenced and on the accuracy with which the facilities associated with the project are defined. (27)

Response: The National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) requires agencies to analyze the impacts of a Proposed Action on the human environment. Section 1508.14 of the CEQ states that the "Human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment." This EIS places equal emphasis on all components of the human environment.

GE-06 Comment: The listing of Issues Addressed in the draft EIS should include impacts to high-voltage electric transmission lines and access roads. The issue should be appropriately addressed with respect to safety for those sections of the project located within existing transmission line corridors and with respect to access road maintenance where the project would share common access with the transmission lines. The hazards associated with work activities in the vicinity of high-voltage electric power transmission lines should also be addressed. (27)

Response: There would not be any impacts to high-voltage powerlines, because TransColorado will comply with requirements of the affected utility company.

GE-07 Comment: On Table 3-3 of the draft EIS, leafy spurge is present in La Plata County. (64)

Response: The table from the draft EIS has been revised and is presented as Table 3-5 in this final EIS.

GE-08 Comment: The Unresolved Issues in the Summary section of the draft EIS should be resolved before the final EIS is published. (61, 84)

Response: The Unresolved Issues section has been removed from this final EIS. Chapter 4 discloses the impacts related to environmental issues within the scope of an EIS. Issues outside the scope of NEPA analysis will be dealt with separately from the EIS.

GE-09 Comment: The San Juan National Forest is a national heritage, passed from one generation to the next and deserves the protection of all Americans. (52)

Response: See response to GE-10.

GE-10 Comment: Rerouting the pipeline through National Forest land would cause the same impacts to land that is supposedly protected for present and future generations. It would cross and impact areas of old growth forest, of which only a very small percentage remains in Colorado or in the United States. (72)

Response: The use of National Forest System lands for this project is controversial. Many prefer using it rather than adjacent private lands, while others do not want it used for the project. Forest plans allow many uses of National Forest System lands, including utility corridors, such as is needed for this project. The final EIS presents an agency preferred route in Chapter 2 that does utilize San Juan National Forest lands.

The final EIS presents in Chapter 4 the impact on National Forest System lands, as well as on private lands. Because some routes on the National Forest are shorter than other routes, impacts in general are less than on longer routes using private land. Impacts to old growth forest will be minimized by avoidance, if possible. The amount of old growth forest that would potentially be impacted by this project is minimal, with only a few isolated patches occurring in the vicinity of the routes being analyzed in the final EIS.

GE-11 Comment: It is time that government agencies respond to the needs of sparsely populated areas such as southwestern Colorado instead of acting according to the demands of big business, whose main interest is moneymaking and large metropolitan areas that demand every convenience and a never ending supply of energy. (72)

Response: As stated in response to comment EM-01, the FERC is responsible (under Section 7 of the Natural Gas Act) for determining that interstate natural gas transportation facilities are in the public interest. The FERC certificates a project only if it finds that the evidence produced on

technical competence, financing, rates, market demand, gas supply, existing facilities and service, environmental impact, long-term feasibility, and other issues demonstrates that the project is required by the public convenience and necessity.

GE-12 Comment: The EIS should include the controversy over the route change proposed in the Norwood area, and it should be included in the EIS summary under unresolved issues. (84)

Response: This agency preferred route in the Norwood area has been modified (see Chapter 2, Description of the Agency Preferred Alternative in the final EIS) to try to avoid creating a new corridor on private land in the Norwood area.

GE-13 Comment: The proposed pipeline route and the various alternate routes need to be presented in a more coherent and comparative format. (86)

Response: Tables 2-4 and 2-9 in the final EIS present information on the proposed route and agency preferred route, respectively, for the entire length of the routes. The format is arranged so that the two routes may be easily compared. Appendix B compares the proposed and agency preferred routes with sections of route that could be used in lieu of either the proposed route or agency preferred route.

GE-14 Comment: The EIS needs to estimate the potential for wildfires and wildfire impacts to Sink Creek, Whitewater Creek, and their tributaries. (86)

Response: Pipeline construction does not result in a high incidence of wildfires. Therefore it was not an issue for impact analysis.

GE-15 Comment: Exception is taken to the statement that appeared in the Montrose Daily Press, quoting the project manager, Chuck Finch, as saying that the EIS is not a decision-making document and that the EIS will merely document the route of the pipeline. (85)

Response: Information in the EIS is provided to decision-makers for use in arriving at a decision. The EIS is one of the important factors used in the decision-making process. The decision regarding the TransColorado pipeline project will be published in BLM and USFS records of decision (RODs). A notice announcing the availability of the RODs will be published in the Federal Register and local news media.

GE-16 Comment: The EIS needs to state whether an impact is significant and identify the measures that would be taken to mitigate those significant impacts. (86)

Response: The term "significant" is very subjective. What may be significant to one person or agency may not be significant to another. CEQ Regulations 40 CFR Part 1508.27 states "Significantly as used in NEPA requires considerations of both context and intensity."

In this EIS, we have tried to describe the impacts in terms of context and intensity rather than taking a checklist approach that states an impact is either significant or not significant. We have, however, indicated where an impact would exceed or violate a law or agency policy. For example, we have stated in the EIS where the BLM/USFS visual management classes would be exceeded.

GE-17 Comment: The EIS needs to describe the unavoidable adverse impacts and identify plans for mitigation. (86)

Response: CEQ Regulations (40 CFR 1502.16) require agencies to discuss unavoidable adverse impacts in the environmental consequences section of an EIS. Unavoidable adverse impacts, as defined by CEQ, are those that would occur after consideration of any mitigation. The "mitigation" or protection procedures for this project are included in the Environmental Protection Measures section presented in Chapter 2 of the final EIS. The impacts disclosed in Chapter 4 are those that would occur after application of these environmental protection measures and, therefore, are the unavoidable adverse impacts.

GE-18 Comment: Of the many impacts shown in the draft EIS, which are truly the most sensitive or important to the environment. (77)

Response: The BLM has no criteria to judge which impacts are truly the most sensitive or important to the environment. Ten different persons asked this question could come up with ten different answers. Some of the major issues in this EIS, however, concern social and economic impacts to private landowners. Other sensitive issues are associated with protection of resources such as threatened and endangered plants and animals, wetlands, air quality, municipal watersheds, and cultural resources.

GE-19 Comment: The EIS analysis should be based on statistical analysis and actual hard figures rather than assumptions. (1, 84)

Response: BLM National Environmental Policy Handbook, H-1790-2, Chapter V, paragraph C.3.h(1), advises the BLM to include a section in the EIS called "Assumptions and Guidelines" to provide the reader with a basis for understanding and judging the reliability of the impact analysis. The handbook states that this section lays the ground rules for EIS team members in conducting the analysis.

GE-20 Comment: Land ownership maps of landownership in and around the proposed pipeline corridor should be made available to the public. (85)

Response: Land ownership maps are available at the appropriate county courthouses. Lands crossed by the proposed pipelines are depicted on maps located at TransColorado Offices.

GE-21 Comment: Larger scale maps are needed in the EIS. (88)

Response: The maps in the EIS are intended to give the reader a general idea of locations. Larger scale maps are available in the local BLM, USFS offices and in the TransColorado offices for public review.

GE-22 Comment: The EIS needs to consider human and economic factors. (95)

Response: The draft EIS text has been revised. Please review the section that addresses private lands, as well as socioeconomic impacts presented in Chapters 3 and 4 of the final EIS. See also responses to EC-08, EC-11, and EC-22.

GE-23 Comment: The draft EIS needs to address the impacts of pulsation and vibration on nearby residents. (77, 81)

Response: "Pulsation and vibration" are interpreted to be the noise generated by compressor station equipment. These noise impacts are addressed in Chapter 4, under Impacts to Air Quality and Noise.

GE-24 Comment: The draft EIS does not address public feelings or sentiments. (53)

Response: This comment/response section in the final EIS addresses the public feelings and concerns.

GE-25 Comment: What kind of coordination and communication is ongoing both within BLM (i.e., between various resource management areas and districts) and between the BLM and U.S. Forest Service. (85)

Response: The BLM and Forest Service are jointly preparing this EIS; however, BLM is the lead agency. A contact has also been established in each affected BLM resource area and each Forest Service Ranger District for coordination of this EIS. Please see Chapter 5 of this final EIS.

GE-26 Comment: The draft EIS does not fulfill the requirements of a site-specific NEPA EIS. (86)

Response: Thank you for your comment. See also response SC-05.

MEGA NOPR

ME-01 Comment: As proposed, the Mega NOPR will make fundamental changes in the marketing and the transportation of natural gas in interstate markets. Prior to issuance of the final EIS by the BLM, particularly since the foundations of the draft EIS rest upon Transcolorado's representations of interstate markets and pipeline operations, the BLM should conduct an independent review of the Mega NOPR and its impacts upon the proposed TransColorado facility. It should be noted that Western Gas Interstate Company and Questar Pipeline Company are specifically listed as being required to submit plans for restructured operations and tariffs under the proposed Mega NOPR. (15, 38)

Response: The Mega NOPR is a current proceeding before the FERC. The BLM does not intend to conduct a speculative review of its merits. Any potential effects that the Mega NOPR may have on the interstate natural gas market conditions is outside the scope of this environmental document.

ME-02 Comment: We think, particularly with respect to the analysis relating to the Kern River alternative, as well as some of the other conclusions reached, that the Mega NOPR is going to have a major impact upon the viability of the TransColorado project. (38)

Response: See response to ME-01.

MINERALS

MI-01 Comment: Coal reserves under pipeline ROWs are not leasable or salable. (53)

Response: Federal regulations (43 CFR 3461.5 (b) (1)) state that federal land within ROWs may be leased and mining operations approved, if the management agency determines that all or certain types of coal development will not interfere with the purpose of the ROW.

MI-02 Comment: A discussion of Powderhorn Coal Company's coal leases and their effect on routing should be included in Chapter 3 and Figure 3-3 of the EIS. (89)

Response: Powderhorn Coal Company's coal lease has been acknowledged in Chapter 3 of the EIS. A measure has also been added to the Environmental Protection Measures section (Table 2-12) in the final EIS. This measure requires TransColorado to reroute the pipeline, should a conflict occur.

MI-03 Comment: The No Action Alternative on page 185 in the draft EIS indicates that the development of coalbed methane would continue in the Piceance Basin at a potentially lower drilling rate if TransColorado is not constructed; however, this statement is inaccurate. Based on Questar Pipeline's proposed expansions in the area and the tax credit incentives, drilling is expected to increase. It should also be noted that the Transwestern Pipeline system is under construction and El Paso will begin construction by January 1, 1992. (89)

Response: The revised final EIS No Action Alternative discussion indicates that drilling in the Piceance Basin would likely continue in response to non-conventional energy tax credit incentives. The revised No Action Alternative discussion also acknowledges that alternative gas transportation systems (Colorado Interstate Gas Uinta Basin Lateral, and Questar Pipeline Main Line No. 58 Upgrade) to portions of the TransColorado pipeline system have been proposed that would transport natural gas from the Piceance Basin to California and Midwestern markets. Construction of these projects would likely represent a positive stimulus on future natural gas drilling, as noted by the commentor.

MI-04 Comment: The EIS does not disclose all of the environmental impacts that would occur from development of coalbed methane such as migration through geologic formations into fresh water aquifers. (85)

Response: The cumulative impacts section in Chapter 4 of this final EIS has been revised to more accurately analyze these impacts. See also responses to SC-03 and AL-06.

CHAPTER 5

PUBLIC INVOLVEMENT

PI-01 Comment: We are concerned with your lack of public involvement in such matters as selecting alternate routes, mitigation of impacts, notifying affected private land owners, and the process by which the BLM/USFS discarded several of the alternate routes in the Mancos corridor. (17, 34, 37, 53, 54, 96)

Response: The BLM, USFS, and TransColorado have striven to keep the public informed and involved throughout this EIS process through formal public scoping (see Chapter 1, Scoping); informal conferences and meetings with local governments; news releases; telephone calls; and formal hearings (see Chapter 5). We will continue to keep you informed and involved. Please review the route selection process added to Chapter 1 of this final EIS and see responses to EC-22, EN-01, EN-03, and RT-01.

PI-02 Comment: We are concerned that there was no opportunity for dialogue at the public hearings conducted for the draft EIS. (20)

Response: This is frequently done during formal EIS hearings to avoid confrontation. However, opportunities were available to ask questions both prior to and following the hearings.

PROJECT DESIGN AND ENVIRONMENTAL PROTECTION MEASURES

PR-01 Comment: The comment requests that environmental protection measures be required and enforced on private property. Some measures include: (1) crossing irrigated agricultural lands at the lower end of the fields, (2) placing rocks back in the trench or removing them from the fields, and (3) backfilling the trench so that it is level. (34, 40)

Response: An environmental protection measure table, which addresses many of the private landowners' concerns regarding construction of the pipeline, has been added to this final EIS. Please see Environmental Protection Measures section, Chapter 2. Also, as stated in the introduction to Table 2-14 in this final EIS, private landowners will have the option to negotiate additional protection measures not covered in this table with TransColorado during the easement acquisition process.

PR-02 Comment: The Colorado Division of Wildlife will require noxious weed control on state wildlife areas and on the remainder of the ROW, if the county committees require it. (64)

Response: The CDOW can negotiate weed control with TransColorado on lands it administers. On Federal lands, if required by state law, TransColorado would be required to control weeds beyond the 5-year reclamation period.

PR-03 Comment: Federal agencies do not assist private land owners in negotiating protection/mitigation measures on their lands. (53)

Response: The EIS provides a general level of environmental protection for resources on private as well as public land. Federal agencies cannot provide specific information for each landowner's property, and could not ensure that specific landowner's interests are protected. It is the responsibility of each landowner to negotiate with TransColorado to protect their interests when reaching ROW agreements. Endangered species and archeological resources will be protected on private land. There is also a federal responsibility, under the jurisdiction of the FERC, to ensure that soil stability and agricultural productivity are maintained on private lands, as outlined in Table 2-14 in the final EIS. Also, see responses to EN-01 and EN-03 regarding protection measures for private lands.

PR-04 Comment: Measures should be taken to avoid areas where revegetation is difficult or extreme measures should be taken to ensure revegetation. (32)

Response: Pipeline construction requires that a stable soil cover be provided over the buried pipeline. This soil cover over the pipeline must be revegetated to a vegetation cover level comparable to adjacent undisturbed plant communities. In one location on the proposed and agency preferred routes (Gilman Gulch near MP 33, north of Debeque), approximately 2,000 ft of slopes are too steep to provide stable conditions for the pipeline. In this location, the pipeline would be installed above the ground, which would reduce the requirements for revegetation on this difficult site. Review the environmental protection measures listed in Tables 2-12, 2-13, and 2-14 of this final EIS.

PR-05 Comment: The comment recommends that only native plant species be used for revegetation. (33, 65)

Response: The seed mixes presented in Appendix D of the final EIS were developed for private and state lands by TransColorado in cooperation with local soil conservation authorities. Native species were incorporated where these species are the best choice. In some cases, non-natives are the best choice for reliable establishment and soil stabilization in the short-term. The non-natives recommended are not considered weeds, and are currently found within the watersheds crossed by the proposed pipeline. These seed mixes were developed as a minimally acceptable protection measure for private and state lands. Landowners may request other seed mixes on a property specific basis. As stated in the environmental protection measures for federal lands (Table 2-12, Vegetation section), TransColorado will meet with each field office to develop site-specific seeding plans for federal lands prior to commencing construction. The specific seed mixtures will be included in the plan of development.

PR-06 Comment: The CDOW recommends seeding with native species and species that can be used for wildlife if such problems do not pose problems to other agencies. (64)

Response: As stated in response to PR-05, the seed mixtures in Appendix D of the final EIS were developed by TransColorado for private and state lands in cooperation with local soil conservation authorities. This table does not apply to Federal lands. Both private land owners and state and Federal land managers will have the opportunity to negotiate specific seed mixtures with TransColorado. Specific seed mixtures may include native species.

PR-07 Comment: The USFWS stresses that yellow and white sweet clover is considered a noxious weed and should never be used for reclamation anywhere in North America. (16, 33)

Response: Within the two states crossed by the proposed pipeline, the subject clover species are not listed as noxious weeds, and continue to be commonly used for reseeding. The CDOW has recommended the use of sweet clover for wildlife forage benefits in specific areas. The sweet clovers provide a reliable nurse crop to protect soils for the short-term until perennial plant cover can be fully established. Further coordination with the USFWS indicates that while sweet clover is not a USFWS preferred reclamation species from a wildlife habitat perspective, the USFWS acknowledges the utility of this species for soil stabilization purposes. For the reasons stated above, sweet clover will remain in the recommended seed mix (Appendix D) and will be available for land owner use. See also response to PR-05.

PR-08 Comment: The CDOW recommends reseeding with yellow sweet clover and dry land alfalfas because of the benefits provided to wildlife. (64)

Response: See responses to PR-05 and PR-07.

PR-09 Comment: The draft EIS lists only common plant names making it difficult to determine the actual species proposed for planting. (33)

Response: Appendix D-1 in this final EIS lists both scientific and common names for revegetation species.

PR-10 Comment: The Colorado Wildlife Society would like to see timing stipulations in brood-rearing habitats of sage grouse and waterfowl. (31)

Response: The wildlife stipulations are presented in Table 2-13 of this final EIS. This table indicates that timing stipulations will be applied for sage grouse and waterfowl brood-rearing areas along the pipeline route.

PR-11 Comment: The CDOW requests that mitigation be handled on a case-by-case basis when maintenance and emergency repairs require entering wildlife areas during critical time periods. (64)

Response: TransColorado would have to apply for waivers to enter wildlife and threatened and endangered species areas for scheduled maintenance during seasonal closure periods. However, TransColorado would not have to obtain waivers for entering these areas for emergency maintenance. TransColorado would have to notify and coordinate with the affected wildlife management agencies when entering bald eagle or raptor seasonal closure areas.

PR-12 Comment: The CDOW recommends specific mitigation measures for big game be implemented in important winter range in the Ryman Creek area on the San Juan National Forest, in the event increased access and vegetative changes occur. (64)

Response: The San Juan National Forest does not believe additional site-specific wildlife mitigation measures are required for the Ryman Creek area beyond those identified in Table 2-12 of the final EIS because existing seasonal closure requirements in this area would remain in force, and TransColorado revegetation and bonding requirements are sufficient to insure adequate winter range rehabilitation. The final EIS agency preferred route does not traverse the Ryman Creek drainage because of soil stability concerns, and requirements for access road upgrades (see Chapter 1, Route Selection Process).

PR-13 Comment: I question whether one environmental inspector for each spread is adequate. What authority will be vested in these inspectors if they witness noncompliance? (32, 78)

Response: The text of the final EIS has been revised to include a Monitoring and Compliance section in Chapter 2. It includes a description of (1) TransColorado Monitoring and Compliance (duties of the environmental inspectors that TransColorado has agreed to hire), (2) FERC Monitoring and Compliance (a requirement that TransColorado hire an independent contractor to monitor for the FERC), and (3) BLM/USFS Monitoring and Compliance. Please note that TransColorado has agreed to provide "a minimum" of one environmental inspector per spread.

PR-14 Comment: The Colorado Chapter of Wildlife Society requests that environmental protection measures be added prohibiting the placement of staging and petroleum storage areas within 200 feet from existing wetlands, or that staging and petroleum storage areas be located so that leakage and leaching of hazardous substances flow away from the natural flow supplying the wetland. (31)

Response: The BLM, USFS, and FERC will enforce a 100-foot buffer zone to protect wetlands from petroleum contamination, and unnecessary damage on Federal, private, and state lands. In addition, as shown on Table 2-12 in the Public Safety Section, an emergency spill plan will be prepared by TransColorado to control leaks and spills. The prevention and containment plan

currently being developed states that pumps and portable fuel tanks will be surrounded by earthen dikes, and any contaminated soil would be removed and taken to an appropriate disposal facility.

PR-15 Comment: The USFWS recommends all refueling/staging areas and petroleum storage areas be located at least 100 feet from wetlands and streams. (33)

Response: See response to PR-14.

PR-16 Comment: The USFWS requests a measure be added to require replacement of wetlands, should unavoidable adverse wetland impacts occur. (33)

Response: Executive Order 11990 requires all federal agencies to take actions to minimize the destruction, loss or degradation of wetlands. The Corps of Engineers (COE) would require wetland replacement if the COE deems it necessary. The COE coordinates with the USFWS and USEPA as part of the Section 404 permitting process, and would consider the recommendations of these agencies in making a determination for the need for wetland replacement. It is expected that the majority of the wetland crossings for this project will be permitted as utility facility crossings under Nationwide Permit 12. Wetland replacement under these types of conditions would not ordinarily be required because wetlands would not be drained, nor would fill be permanently placed in wetlands as a result of construction.

The Albuquerque District of the COE will require that pipeline river crossings in New Mexico (La Plata and Animas Rivers) be conducted under the terms of a regional permit, which represents an alternative process to an individual permit. The regional permit guidelines are contained in Appendix C of this final EIS. This regional permit was developed to address cumulative water quality impacts on federally endangered fish species and on other water uses in these river systems. The regional permit specifically requires coordination among the COE and USFWS to determine whether a regional permit is appropriate for the proposed river crossing. It also outlines the wetland rehabilitation measures.

In summary, the joint federal responsibilities to protect wetlands, as well as the coordination responsibilities among the COE, USFWS, and EPA during the Section 404 permitting process will ensure that lost wetlands will be replaced. Because of these mandates, a specific measure for wetlands replacement has not been added to the environmental protection measure list.

PR-17 Comment: The Colorado Division of Wildlife recommends boring under all stream crossings. (64)

Response: Under the Proposed Action and Agency Preferred Alternative, boring under streams and rivers is not recommended because most streams and rivers would need to be crossed using directional boring techniques. Directional boring would require staging areas, mud pits, and mud disposal sites. Therefore, directional drilling would result in more total disturbance than trenching.

PR-18 Comment: The Colorado Department of Transportation requires boring under all highway crossings. (28)

Response: TransColorado will apply for and comply with the necessary permits for crossing highways as shown in the final EIS in Chapter 1, Table 1-3; Chapter 2, Special Areas Construction (Road and Railroad Crossings); and Chapter 2, Table 2-12 for Transportation. TransColorado will bore under all highway crossings as described in Chapter 2 of the final EIS.

PR-19 Comment: The draft EIS states that construction would take place during low flow conditions. Are the dates for those crossings pre-set, or will crossings occur as they are encountered? (32)

Response: As the EIS states, stream crossings will occur at low flow. This protection measure is not tied to specific dates, but refers to the flows that occur after spring snowmelt runoff has ceased. During this post-runoff period, stream crossings would be constructed as encountered, unless otherwise directed by the authorized officer.

PR-20 Comment: The Colorado Division of Wildlife recommends the pipeline be realigned to avoid wetland areas. (64)

Response: See response to WA-21.

PR-21 Comment: The 1-mile working width that is analyzed in the draft EIS is not acceptable at the present location [assumed to be in the Roan Creek Valley - ed.]. (40)

Response: The 1-mile working width was used for inventory purposes. The final EIS clarifies the issue concerned with the ROW width. It states, in part, the right-of-way and the temporary use permit (TUP) that would be issued to TransColorado for construction purposes would be for a 75-foot-wide working width, and in some areas, the working width would be reduced to 50 feet. It also states that TransColorado would have to apply for additional TUPs to go outside of the widths analyzed in this final EIS, and that additional environmental analysis would have to be conducted prior to issuing these additional TUPs.

PR-22 Comment: The proposed pipeline should be constructed in such a way that environmental damage is negated entirely. This could be done by complete ecosystem landscaping and design. (66)

Response: Environmental damage associated with pipeline construction cannot be entirely negated; however, application of standard soil protection and revegetation measures defined in Table 2-12 (federal lands) and Table 2-14 (private lands) in the final EIS describes the final long and short-term restoration. Approximate rates of revegetation are described in the final EIS in the wildlife section of Chapter 4. See also response to RE-11.

PR-23 Comment: The USFWS recommends emergency shut-off valves be placed on both sides of all river and stream crossings to protect fish and wildlife resources. (33)

Response: The applicant does not believe that shut off valves on each side of major river crossings are necessary because any pipeline ruptures/leaks would vent non-toxic methane gas to the atmosphere, with minimal hazard to aquatic life. As discussed in response to Comment PR-16, the COE will coordinate with the USFWS during the 404 permitting process to determine the necessity of additional protection measures at major stream crossings to protect fish and wildlife resources. See also response to WA-03.

PR-24 Comment: The final EIS should describe how the company plans to acquire the water to test the pipeline. (33)

Response: The final EIS includes information on water acquisition and hydrostatic water discharge. See Table 2-2 in Chapter 2, the Natural Resources Requirements section, in this final EIS.

PR-25 Comment: On page 159 in the draft EIS, under Impacts to Topography, it is stated that, "Active landslide areas crossed by the pipeline would be stabilized by environmental protection measures described in Chapter 2." No discussion of this was found in Chapter 2. (68)

Response: The final EIS identifies potential landslide areas on Table 3-4. General protection measures under Topography in Table 2-12 and 2-14 in the final EIS include subsurface drainage and buttressing as methods to stabilize active landslide areas (unstable slopes).

PR-26 Comment: The acreage to be disturbed appears to be inconsistent. Values shown in Tables 2-1 and 2-11 in the draft EIS, for areas to be disturbed, are calculated on the basis of a 75-foot-wide ROW. On page 33 of the draft EIS, it is stated that, "Construction in some areas, such as river or stream crossings, highway crossings, and steep slopes may require ROW in excess of the 75 feet." Tabulations in Tables 2-4 and 2-12 of the draft EIS indicate that areas with slope problems that may require wider ROWs make up 41 percent of the proposed route and 37 percent of the agency preferred route. A more accurate estimate of anticipated disturbance should be presented. (68)

Response: The values shown on Tables 2-1, 2-4, 2-9, and 2-12 of the draft EIS are rounded to the nearest mile. The areas that will require a wider ROW width are very short and therefore are a very small fraction of the total length. Areas of steep slopes that may require a wider ROW width have not been intensively surveyed; therefore, at this time, the total acreage disturbed can only be estimated based on best available data.

PR-27 Comment: The proposed pipeline crossings located in the Grand Junction area are in contradiction to BLM planned management actions that limit surface-disturbing activity of the Palisade and Grand Junction municipal watersheds and ensure that no surface occupancy be allowed on slopes greater than 40 percent. (36, 86)

Response: The Grand Junction Resource Management Plan (RMP), dated January 1987, protects the municipal watershed on Federal lands by designing projects to "minimize or prevent impacts on water resources" (Chapter 2, page 2-5 of the RMP), but it does not prohibit all projects. The RMP also allows surface occupancy on slopes greater than 40 percent, if environmental analyses indicate that the surface impacts of these activities can be rehabilitated to ensure short- and long-term soil and vegetation stability. Throughout the RMP, statements are made that management actions, design practices, and stipulations may be altered or waived by the affected resource area managers (e.g., Appendix B and Appendix D of the RMP) if the lessee (or applicant) can demonstrate that operations can be conducted without causing unacceptable impacts on the concerns identified.

In the case of the TransColorado pipeline, the Federal Agencies (including FERC) are working with TransColorado to design the project. Measures have been included in the Special Areas Construction section and in the environmental protection measures tables, located in Chapter 2 of this final EIS, to minimize or prevent impacts to the watersheds. Should the analysis in this EIS demonstrate that the operations could be conducted while ensuring the short- and long-term stability of the municipal watershed, soils, vegetation, and surface water quality, the RMP restrictions and stipulations concerning the watersheds and steep slopes would be waived.

PR-28 Comment: The proposed pipeline routing down the face of the Grand Mesa and the associated impacts depicted in the comment are inconsistent with this ongoing effort that the public has with the Federal agencies to preserve the surface area. (36)

Response: See response to SC-14 regarding the multi-agency special management plan for the Grand Mesa area.

PR-29 Comment: The Corps of Engineers requests the location of each stream crossing and the amount of material that will be placed below the ordinary high-water mark. (71)

Response: Appendix C includes two letters from the COE, Albuquerque and Sacramento Districts, respectively. These letters identify types of permits necessary for the proposed river crossings. Stream and associated wetland crossings are listed and located by milepost in Appendix C, Tables C-1 and C-2, of the final EIS. Site-specific information depicting construction activities at individual stream crossings will be provided by TransColorado, as requested by the COE for permit approval, before any construction activity is authorized by the BLM. It also should be noted that a statement has been added to the environmental protection measures table for Federal lands (see final EIS, Table 2-12, Stream Crossings section). The statement limits the amount of fill that can be placed in streams below the ordinary high mark to 1 cubic foot, as required by Nationwide Permit 12 for most crossings. See Appendix C for COE guidance on wetlands delineation and crossing design, and for regional permit requirements for river crossings in New Mexico.

PR-30 Comment: For major stream crossings, the open-cut method will be used with tracked backhoes. For crossings of cold water streams with trout populations, sedimentation must be controlled and flume pipes should be employed for as many cold water streams as possible. If the use of flume pipes involves the placement of dredged or fill material into the stream, an individual Corps permit may be required. (71)

Response: A measure that addresses this concern has been added to the environmental protection measures for federal lands (see final EIS, Table 2-12, Stream Crossings section). The measure requires rock waterways to be installed on stream banks where high seasonal flows are expected. It also states that only 1 cubic yard of material per running foot will be placed below the ordinary high-water mark. See COE letters in Appendix C for crossings design considerations.

PR-31 Comment: The draft EIS indicates that agencies will receive site-specific construction plans for major river crossings. The plans that are received should include a delineation of the Federal wetland boundary associated with each crossing. Some of the wetland crossings involve extensive crossings, and the EIS needs to evaluate whether or not wetlands have been avoided to the maximum extent practical. Site inspections should also be made to make this determination. (71)

Response: See response to PR-29.

PR-32 Comment: The draft EIS has not adequately addressed several issues that are important to Rio Blanco County. The construction of connector lines, compressor stations, and roads associated with connecting new and existing gas wells to the main pipeline would be expected to have impacts far greater than just the main pipeline itself. It would be desirable to consider the impacts of these associated activities in the review of this project. For example, the construction of the two proposed compressor stations by WestGas and Questar in Rio Blanco County adjacent to the TransColorado Pipeline are a concern to local ranching operations along Piceance Creek. It is recommended that the setting of these associated facilities, as well as the main pipeline, take into consideration the needs of the local community. (69)

Response: The Cumulative Impacts section in Chapter 4 of this final EIS has been revised to include impacts from projects that may or may not be related to the TransColorado pipeline proposal, but that are being authorized by BLM and USFS independently of TransColorado. This section estimates total land disturbance of these projects and discusses impacts in a qualitative rather than quantitative manner. Furthermore, it includes only the oil and gas projects of which the BLM and USFS are aware. To analyze the impacts quantitatively and comprehensively would require the preparation of a regional EIS for oil and gas development. To our knowledge, none is scheduled at this time.

PR-33 Comment: Implementation of protection measures identified in the draft EIS would restore the natural slope of the pipeline; therefore, topography would not be affected by the pipeline (89).

Response: It is expected that permanent changes in topography would occur on sideslopes equal to, or greater than 40 percent. Recontouring equipment would be limited in its effectiveness on these steep slopes, and long term alterations in slope contour are expected in these areas.

PR-34 Comment: The City of Grand Junction requests the EIS provide specific detailed information about the precautions and methods of construction that will be used to stabilize steep slopes and landslide areas and to protect the pipeline from landslides. Retaining structures to stabilize landslide crossings should be indicated. (86)

Response: More detailed information on the steep slope and rocky soil construction methods has been added to the final EIS in Chapter 2, Special Areas Construction section and in Tables 2-12 and 2-16. See also response to PR-36.

PR-35 Comment: The City of Grand Junction requests the EIS describe in detail the potential for future landslides caused as a result of pipeline construction. (86)

Response: The description of the Grand Junction watersheds has been revised to include more detailed discussion of landslides within the basins. Table 3-4 shows that an area of active landslides occurs in the upper reaches of the Sink Creek Basin (MP 75.3). Landslide deposits continue down the steeper portions of the watershed. The area of active landslides is characterized by numerous small slumps and slides that are limited in areal extent, depth of displacement, and distance of soil movement. In most cases there is sufficient space between slides for the pipeline to avoid areas of active movement. In areas of active landslide movement geotechnical studies would be conducted prior to construction to develop site-specific designs or to confirm the adequacy of standard construction methods (see environmental protection measures under Topography in Tables 2-12 and 2-14 of the final EIS). Application of appropriate designs and construction methods would minimize the potential for landsliding as a result of pipeline construction.

PR-36 Comment: The City of Grand Junction requests the EIS describe the kinds of materials to be excavated, the excavation and earth-hauling methods, the disposition of excavated material, and the transportation and other logistics involved in the excavation. (86)

Response: The portion of the pipeline in the Grand Junction municipal watershed (primarily the Sink Creek watershed) would cross soils in the Empedrado-Pagoda-Godding complex, and Emmens-Cerro-Pagoda complex. The profiles of these soils typically contain large basalt boulders and stones that have washed down from the basalt Grand Mesa cap. It is expected that blasting in the pipeline trench, and disposal of rock fragments, limited topsoil, and steep slope construction conditions will be soil management issues in this area. Rehabilitation measures have been included in Tables 2-12 and 2-14 (Soils and Vegetation sections) to address the rehabilitation and disposition of excavated materials. A discussion of steep slope construction methods, which

has been added to Chapter 2, Special Area Construction, addresses construction equipment and staging areas for equipment.

PR-37 Comment: Cutoff walls to prevent groundwater piping and unintentional drainage of wetlands should be required and stipulated in the EIS. (86, 90)

Response: A measure for stream crossings has been added to Table 2-12 of the final EIS to require trench breakers at pipeline entrance and exit points and shallow aquifers.

PR-38 Comment: The Animas River crossing needs further discussion in this EIS. (78)

Response: The Animas River is a tributary to the San Juan River, which is a part of the recovery program for threatened and endangered fish species occurring within the Colorado River, particularly the Colorado squawfish. The BLM is currently in consultation with the USFWS to determine the impact of the proposed pipeline crossing the Animas River on this recovery program. Water quality in the Animas River has been impaired by both agriculture and resource extraction processes. Due to water quality concerns, Federal and states agencies have asked the COE to revoke nationwide permits for pipeline crossings at the Animas River. As indicated by the COE (see Appendix C) crossing of the Animas River in New Mexico will require a regional Section 404 permit. See the coordination discussion under PR-10 and COE regional guidance for regional permit in Appendix C.

PR-39 Comment: La Plata County feels that any new transmission pipeline serving Western Colorado should be larger than the proposed 22 to 24-inch diameter pipeline. (83)

Response: The TransColorado Project proposal under consideration is to construct a pipeline system that would have the capacity to transport 300 million cubic feet of natural gas per day. The FERC staff examined TransColorado's proposed engineering design and concluded that the proposed system is properly designed to the project objective.

PR-40 Comment: Can gas produced in La Plata County be transported by this pipeline? (83)

Response: Because TransColorado would be an open-access pipeline, gas entering the proposed system would do so only as a result of contract negotiations between gas producers and gas purchasers. La Plata County is free to enter into negotiations with gas purchasers and TransColorado for this purpose.

PR-41 Comment: The EIS should clearly state what mitigation measures are to be required on public land with an emphasis on avoiding impacts altogether. (85)

Response: The environmental protection measures tables (Table 2-12, 2-13, and 2-14) in Chapter 2 of the final EIS address mitigation measures for construction on federal, state and private land.

PR-42 Comment: The EIS should describe in detail the precautions and methods of construction that would be taken to protect the pipeline from breaks or ruptures where it crosses steep slopes and landslide areas. (86)

Response: The final EIS (Chapter 2, Special Areas Construction) describes steep-slope construction methods. Tables 2-12 and 2-14 include Topography and Soils sections that list measures that would be taken to minimize pipeline failures. In addition, geotechnical studies have been and will continue to be conducted in potential landslide areas, as needed. As indicated in Tables 2-12 and 2-14, site-specific design measures will be developed for particular problem areas based on these studies.

PR-43 Comment: The EIS should describe the pipeline crossings of the Grand Junction water lines. (86)

Response: TransColorado's pipeline would cross underneath the water pipelines of the Grand Junction water supply system. Please refer to the revised text in Chapter 2, "Special Area Construction" section, "Buried and Overhead Utility Crossings" subsection and Figure 2-7 in this final EIS for details of a typical utility crossing.

PR-44 Comment: The EIS should describe the pipeline construction and inspection processes. (86)

Response: A more in-depth description of the construction methods has been added to the Pipeline Construction section in Chapter 2 of the final EIS. Additional information on monitoring/compliance has also been added to Chapter 2 of this final EIS.

PR-45 Comment: The EIS needs to describe the transportation and housing of construction workers. (86)

Response: Transportation and housing of construction workers was described in the draft EIS on pages 46 and 47. This information is presented in Chapter 2 of the final EIS, Infrastructure Requirements subsection.

PR-46 Comment: The EIS should explain how field crews could shut down manually-operated block valves within 0.5 to 1 hour. This seems like an optimistic response time. (86)

Response: The Facilities Construction section, Block Valves subsection, and the Emergency Response section in Chapter 2 have been revised to indicate that emergency response times during winter would be 1 to 1.5 hours. Under adverse weather conditions, response time would be longer.

PR-47 Comment: CDM suggests using automatic block valves, more frequent spacing in ecologically sensitive watershed areas like the Grand Mesa slopes (perhaps 1-mile intervals), and an annual operation and maintenance program to make sure that all block valves are in operating condition. (86)

Response: The Department of Transportation (DOT) requires block values to be spaced at 20-mile intervals. The DOT also requires inspection and maintenance checks of valves at least once each calendar year. This information has been added to the Facilities Construction section, Block Valves subsection, in Chapter 2 of this final EIS.

PR-48 Comment: The EIS should describe how the pipeline would be protected at stream crossings. (86)

Response: Pipeline protection is described in Chapter 2 of the draft EIS for Special Areas Construction, River and Stream Crossings. Required protection measures, which include more specific procedures at stream crossings, have been added to Tables 2-12 and 2-14 of the final EIS.

PR-49 Comment: The EIS should describe how the Grand Junction water line, the proposed pipeline, and surrounding area would be protected. (88)

Response: The text has been revised to add more detailed information about the crossing of water lines, other pipelines, and transmission lines. See Chapter 2 of the final EIS for Special Areas Construction, Buried and Overhead Utility Crossings.

PR-50 Comment: TransColorado representatives have indicated that the pipeline would be located above ground in the Gillman Gulch vicinity, yet the draft EIS does not describe this above-ground construction. (88)

Response: The text has been revised to describe any above-ground construction methods. See Chapter 2, Special Areas Construction in the final EIS.

PR-51 Comment: The EIS needs to specify that solid wastes will not be dumped in aquatic sites. It also needs to explain how waste discharges would be handled. (85, 90)

Response: As stated in this final EIS (Chapter 2, Pipeline Construction section, Cleanup and Restoration and Hydrostatic Testing subsections), all waste materials including hydrostatic test water either would be stored or disposed of at approved waste disposal sites in accordance with applicable regulations. Hydrostatic test water would be discharged in such a manner as to not cause increased erosion or pollution of the rivers or streams.

PR-52 Comment: The draft EIS states that the Mancos Valley East Variation would require the construction of 25 and one-half miles of new road. I don't accept that a 24-mile section of pipeline would require the construction of 25 miles of road. (59)

Response: No new permanent roads would be constructed to provide access to the pipeline ROW. TransColorado would upgrade existing roads to provide access for pipeline equipment. These upgraded roads extend to the ROW from the existing road system, which may be located a mile or more from the ROW. As a consequence, the miles of ROW areas will exceed the number of miles of pipeline ROW that the roads support.

PR-53 Comment: Who will hire the environmental inspectors that oversee this project and to whom will they report? (92)

Response: A new section has been added to the final EIS to explain the monitoring and compliance process for this project (see Chapter 2, Monitoring and Compliance Section). The environmental inspectors would work for and report to TransColorado. However, an independent contractor would also be employed to monitor the pipeline construction on private land. The environmental contractor will be responsible to FERC. BLM and USFS personnel will monitor construction on Federal lands.

PUBLIC SAFETY AND PIPELINE INTEGRITY

PU-01 Comment: The draft EIS does not adequately describe the dangers to public safety from pipeline emissions, leakage, eruptions, explosions, and fire. (53, 59, 60, 77, 86)

Response: The Impacts to Public Safety section in Chapter 4 of the draft EIS describes the risks of pipeline leaks and risks to public health, as well as an estimate of TransColorado response time to an incident. The primary hazard from a pipeline leak or rupture is a fire or explosion; released methane gas is expected to vent to the atmosphere, and does not represent a water pollution threat because methane is non-toxic, and unlikely to dissolve in water upon release.

PU-02 Comment: The EIS should describe the probability and potential for leaks, spills, and ruptures where the same might result in water pollution and damage to treatment facilities. (36, 86)

Response: See response to PU-01.

PURPOSE AND NEED

PUR-01 Comment: The use of the gas that would be transported by TransColorado has been assumed to be for industrial and electrical generation purposes. The use should be explicitly defined and factual to support the need for the project. (27, 85)

Response: TransColorado is not a buyer and seller rather a transporter of natural gas and has no control or detailed information about how the gas will be used. The majority of the shippers wanting to use TransColorado pipeline have indicated that the gas would be used for commercial, industrial, and electric generation.

PUR-02 Comment: The comment challenges the need for this pipeline. Because of the federal subsidies of coal-seam gas and the subsequent massive drilling programs within the industry, gas prices have plummeted on a national scale. There has been increased production of gas, but there hasn't been a noticeable increase in markets. More careful consideration must be given to the question of need before destroying people's property for the sake of a pipeline that may not even be necessary. (1, 10, 60, 77, 85)

Response: As discussed in the Natural Gas Supply and Demand section of the draft and final EIS, general market conditions are reflecting increased demand for natural gas resources due to uses in enhanced oil recovery and for heating fuel, utility electric generation and the advent of natural gas powered automobile fleets. More importantly, passage of the 1990 amendments to the Clean Air Act will promote the use of natural gas, particularly in portions of southern California where air pollution problems are considered extreme. Under Section 7 of the Natural Gas Act [15 USC 717(c)}, FERC is responsible for determining that interstate natural gas transportation facilities are in the public interest. In its December 20, 1990 "Preliminary Determination on Non-Environmental Issues" concerning the TransColorado Project, the FERC determined that the TransColorado proposal is in the public interest. Further consideration of these non-environmental issues should be brought before the FERC for its continued proceeding for the TransColorado proposal.

PUR-03 Comment: Building a pipeline across Federal land without demonstrating a need for it is a waste of Federal resources. The pipeline would injure the Southern Ute Indian Tribe and violate the Federal Government's "Trust" responsibility to the tribe. (15)

Response: See responses to EC-01, EC-04, and PUR-02

PUR-04 Comment: Why should there be any pipeline connecting the northern pipeline route and the southern pipeline route? According to the maps provided in the draft EIS, pipelines are already in existence or are being built to serve what is stated as the two largest money-making markets for our limited natural gas reserves, the Midwest and the West Coast. (60, 77, 81)

Response: The entire western slope of Colorado is a natural gas production area. TransColorado is designed to collect natural gas from this entire production area and transport it to pipelines capable of delivering the gas to markets. The existing north-south lines do not serve the same production areas that TransColorado would serve.

PUR-05 Comment: Why do we as land owners have to be invaded with another pipeline when there is already one in place to carry all the gas that TransColorado wants to carry? (24, 77, 81)

Response: The existing pipeline the commentor references (Northwest) is at or near capacity a majority of the time. TransColorado's line has been proposed to eliminate this capacity constraint and to provide competitive service to the operators who want to ship gas from this area.

As described in under Pipeline System Alternatives in Chapter 2, an upgrade of the Northwest pipeline system would not necessarily reduce the environmental impacts relative to the TransColorado project. A substantial number of miles of new pipeline, and pipeline looping would be necessary to upgrade the Northwest system; new route variations would be needed to avoid Arches National Park, and the Colorado River Canyon near Moab.

Other pipeline systems that would provide partial alternatives to TransColorado include the CIG Uinta Basin Lateral, and the Questar Main Line No. 58 Upgrade (see the No Action Alternative discussion in Chapter 4 and descriptions of these projects under Related Projects in Chapter 1).

PUR-06 Comment: The EIS should analyze the economic viability of the pipeline should the tax credit for coalbed methane development be extended. (85)

Response: The draft EIS text has been revised. Review the revised discussion in Chapter 4, Impacts to Socioeconomic Conditions, Natural Gas Markets and Pipeline Capacity in the final EIS. See also response to PUR-02.

PUR-07 Comment: The final EIS should document the volume of gas that existing pipelines are designed to transport and are actually transporting and where the gas is being accessed and marketed. (85)

Response: See responses PUR-02 and PUR-05.

RECREATION

REC-01 Comment: Alternate J (the TransColorado Proposed Route) would enhance recreation in the San Juan National Forest. (6)

Response: As discussed on page 26 of the draft EIS (Impacts to Recreation), no developed recreational facilities would be crossed by the proposed route, agency preferred route, or any of the route variations. Although the pipeline corridor may enhance dispersed recreation in the San Juan National Forest, off-road access will not be permitted, other than winter activities. Use of Alternate J (proposed route), would allow the USFS to consider improving or establishing trailheads and using a portion of the route as a cross-county ski or snowmobile trail, depending on the needs of the area.

REC-02 Comment: Pursuant to Section 9(b) of the National Trails System Act, the National Park Service requests the pipeline ROW be considered for designation as a multiple-use trail for bicycling, hiking, horseback riding, cross-county skiing, and other potential trail uses. Such secondary use would help defray the dedication of public lands to a single economic use and provide a unique opportunity for public/private sector cooperation. (56, 93)

Response: In general, the pipeline corridor will not be used for new multiple-purpose recreational activities. These types of multipurpose uses could degrade other resources, such as wildlife habitat. Where feasible and needed, the pipeline routes presented in the final EIS were considered for use as trails. Only one portion on the proposed route in the San Juan National Forest was usable for a trail. See also response to REC-01.

REC-03 Comment: I am concerned about the impacts on the Escalante Recreational Area and the San Juan National Forest. (84-13)

Response: No special management area called "Escalante Recreation Area" was identified within the area crossed by the proposed pipeline. Impacts to the San Juan National Forest have been included within the impact subjects (e.g., wildlife, soils) discussed in this final EIS.

REHABILITATION

RE-01 Comment: It would seem that non-irrigated rangelands would be more difficult to rehabilitate than the irrigated fields of Alternate G. (65)

Response: Rangelands are generally more difficult to revegetate than irrigated lands, but TransColorado is committed to ensure successful revegetation, regardless of the type of land affected.

RE-02 Comment: The commentor is concerned that the planned reseeding of serial introduced species on national forests lands would not fit in the natural plant community. (65)

Response: Final seed mixtures on National Forests would be developed to meet the requirements of each Forest Service Ranger District.

RE-03 Comment: The City of Grand Junction is concerned about successful rehabilitation on steep slopes and at stream crossings. (35, 86)

Response: The environmental protection measures for vegetation presented in Tables 2-12 and 2-14 of the final EIS indicate that revegetation efforts would continue until adequate cover is established. Erosion control measures are also stipulated for soils and stream crossings to prevent excessive siltation into streams. Also, see responses to PR-04 and PR-27.

RE-04 Comment: The Federal agencies indicate that the effects of the pipeline would be minimal, but the commentor disagrees with this statement because the land will not heal in his lifetime. (23)

Response: The draft EIS provides estimates of revegetation recovery times on disturbed lands. See Chapter 4, "Impacts to Soils, Prime and Unique Farmlands, and Livestock Grazing" sections. It is not clear to which time frame the commentor is referring in the comment.

RE-05 Comment: The issue of only addressing the acres that fall within the pipeline ROW is not correct, because pipeline construction affects all irrigated farmland adjacent to and below the pipeline for years to come with regard to the reconstruction of the soil properties and the irritability of the land. (43)

Response: The potential problem of changing the distribution and flow of water across irrigated land located downslope from the pipeline trench is addressed in the final EIS in Table 2-14 for environmental protection measures on private and state lands. These commitments for agricultural lands indicate that fields crossed by the pipeline would be monitored periodically for 2 years after construction completion to ensure that field flow characteristics have been maintained. Also see response to FA-04.

RE-06 Comment: No justification is given for grading of the entire ROW, which tends to maximize problems of erosion and reclamation. In arid shrubland communities, there is a wide range of sensitivity to grading, with some species requiring centuries for recovery. Impacts can be greatly reduced by pruning rather than grading, and by temporary transplantation of younger individuals of species that cannot be pruned to ground level. (68)

Response: The ROW will only be graded where necessary to provide a safe working area. See Chapter 2, Proposed Action; Construction; Clearing and Grading. The environmental protection measures presented in Tables 2-12 and 2-14 of the final EIS address the issue of preserving shrub root systems to enhance recovery and reduce soil erosion. For the vegetation measures, TransColorado has committed to preserve vegetation root systems, wherever possible, during grading. Transplanting individual shrubs is not considered a feasible revegetation measure because of very low survivability.

RE-07 Comment: Expectations for success in restabilization (1 to 5 years) seems to be overstated. Also, while the draft EIS states that revegetation success will be monitored throughout the lifetime of the project and that some areas may need repeated efforts to revegetate, no specifics are given about how the monitoring will be carried out, or how needed renewed efforts are to be guaranteed. (68)

Response: The text has been revised in the Monitoring and Compliance section in Chapter 2 of the final EIS. It states that independent inspectors would ensure compliance with the environmental protection measures on private and state lands. Federal employees would perform the same function on Federally-managed lands. The specifics of the monitoring are dependent on the landowner/manager and would be specified in the Plan of Development. The methods used for repeat revegetation treatments would depend on the requirements of the specific site, and the desires of the land owner/land manager.

RE-08 Comment: Since there is already a pipeline in the agency preferred corridor and in part of the proposed corridor, substantial information should be available on the degree of impacts to be expected, the success or failure of various reclamation procedures, and time required for restabilization and recovery of natural productivity. No apparent use is made of this information. (68)

Response: The relative successes of past pipeline ROW revegetation efforts were examined as part of the field reconnaissance of the TransColorado proposed route. These reconnaissance efforts consisted of helicopter flyovers and periodic ground examination of the pipeline ROW. These field efforts are documented with photographs and were used as a basis for estimating recovery times described in the EIS.

RE-09 Comment: The EIS needs to explain the new state law governing weed control and how it would affect private landowners. (84)

Response: Table 2-12 in the final EIS identifies requirements for weed control on Federal lands; Table 2-14 in the final EIS presents these requirements for private and state lands. A discussion of state weed control laws is believed unnecessary in light of these requirements.

RE-10 Comment: The EIS should provide detailed revegetation plans for the various vegetation types that would be removed. (16, 86, 92)

Response: Due to the many site-specific variables associated with the revegetation of the ROW, detailed revegetation plans have not been prepared for the final EIS. Federal and state agencies as well as private landowners will finalize site-specific revegetation needs after the final route has been determined. Tables 2-12, 2-13, and 2-14 in the final EIS contain a number of environmental protection measures applicable to revegetation success, listed under Vegetation, Stream Crossings, Wetlands, Soils, and Visual Resources. Appendix D lists recommended seed mixtures for state and private lands for the different vegetative types found along the ROW.

RE-11 Comment: The EIS does not describe the vegetative growth conditions and therefore a no-impact conclusion lacks credibility. (86)

Response: The Impacts to Wildlife section in Chapter 4 of the EIS estimates revegetation recovery times for different types of vegetation (i.e., trees, shrubs, herbs). As indicated in this discussion, many woody species would require relatively long times to recover to their former size and ground cover. These long term impacts have been acknowledged throughout the EIS.

RE-12 Comment: San Miguel County is in the process of considering an amendment to its land use code to require any project that disturbs the soil in this county to have a revegetation plan and monitoring system in place. There needs to be a careful revegetation plan, using primarily native species, to bring the land back to its natural state, as well as a long-term program of monitoring to be sure that introduced weeds are not allowed to grow and spread from the disturbed site. (84)

Response: The project would be required to have a revegetation plan and revegetation success monitoring system to ensure that the disturbed sites are fully restored. Seed mixes would be negotiated with the land owners/managers. Noxious weed control would also be required. See responses to RE-10, PR-04, PR-05, and PR-13. The project would comply with county laws that are in effect at the time of construction (see Table 1-4).

ROUTING

RT-01 Comment: Public utilities for the public good should be placed on public land rather than private land. (4, 12, 17, 23, 34, 42, 45, 46, 48, 53, 55, 56, 73, 78, 83, 85, 92, 95)

Response: Many public comments were received about how routes were selected for comparative purposes, the relative use of public and private land for the pipeline ROW, and the decision-making process used to select an agency preferred route. Additional sections have been added to the final EIS to address some of these issues. The following is a summary of the information added to the final EIS and additional explanations for the agency approach to route analysis.

1. Route Selection Process. The Route Selection Process section in Chapter 1 of the final EIS has been expanded to include additional information on the route segments considered before and after public scoping, and the reasons why some routes were eliminated from further consideration. As indicated in the EIS, additional route segments were added for evaluation after review of public scoping comments.

   The BLM and TransColorado have demonstrated throughout this process that multiple route variations have been considered where the relative use of public versus private land has been an issue. This consideration of alternative routes is amply demonstrated in the Mancos Valley, where there has been an ongoing dialogue with landowners and local elected officials throughout the process.

2. Agency Preferred Route Selection Process. The selection of the agency preferred route discussed in the final EIS in Chapter 1 is based on: 1) the sensitivity and quality of resources potentially affected by construction and operation of the pipeline; 2) the ability to control resource impacts over the short and long term; 3) potential effects on the social and economic well-being of private landowners, as well as citizens who use public lands for grazing, hunting, fishing, and other recreational activities; and 4) public comments received during the NEPA process, including public scoping and comments on the draft EIS. The balancing of these considerations is not a simple quantitative rating, since all rating systems are subject to interpretation bias. The route analysis process that has been used throughout the TransColorado NEPA documentation is one of adjustment and modification of the pipeline route variations to address the range of private and public interests that have been identified within the pipeline study area.

The agency team's route selection decisions have been based on a balancing of the factors listed above. The relative weights of these factors vary from place to place along the route, with the overall objective of providing a constructible pipeline route with a minimum of natural resource and human impacts. A new section has been added to the final EIS titled, "Agency Preferred Route Selection," which summarizes the primary factors that were considered in selecting the final EIS agency preferred route throughout its length.

RT-02 Comment: In the Mancos Valley, place the pipeline on Alternate J (the TransColorado proposed route on the National Forest) to avoid private land and houses in the existing Mancos corridor. (6, 7, 8, 9, 10, 13, 17, 82)

Response: See response to RT-01.

RT-03 Comment: In the Mancos Valley, place the pipeline on the agency preferred route (existing Mancos corridor instead of Alternate J - Agency Preferred Route) for reasons such as impacts on natural resources and lower constructions costs. (17, 31, 52, 64, 67)

Response: See response to RT-01.

RT-04 Comment: In the Mancos Valley, place the pipeline on the Mancos Valley East Variation (Alternate E) because it would impact fewer private land owners and the impacts on the natural resources would be less. (23, 25, 43, 46, 47, 49, 50, 51, 53, 54, 62, 63, 76)

Response: See response to RT-01.

RT-05 Comment: In the Mancos Valley, the Mancos East Variation is superior to the TransColorado Proposed Route (Alternate J). (59, 82)

Response: See response to RT-01.

RT-06 Comment: In the Mancos Valley area, we oppose the Mancos Valley East Variation (Alternate E) as the proposed route for the TransColorado pipeline. (65, 77)

Response: See response to RT-01.

RT-07 Comment: In the Grand Junction area, the City of Grand Junction is opposed to the Agency Preferred/Transcolorado proposed route. (35)

Response: See response to RT-01.

RT-08 Comment: In the Grand Junction area, the commentor opposes the Grand Valley Route because the topography of the area is not suitable for a project of this magnitude. Also, the visual and aesthetic values on the Grand Valley Route are just as important as those on the Agency Preferred/TransColorado proposed route, which is opposed by the cities of Palisade and Grand Junction. (37)

Response: See responses to RT-01 and VS-07.

RT-09 Comment: In the Cortez area, the San Juan Variation is preferred or has potential as a viable route. (14, 46)

Response: See response to RT-01.

RT-10 Comment: In the Norwood area, the commentor vehemently opposes the agency preferred route, which would affect the Lone Cone/Lake Miramonte area. (66, 79, 80, 92, 95)

Response: See response to RT-01.

RT-11 Comment: In the Norwood area, the agency preferred route is the superior route. (82)

Response: See response to RT-01.

RT-12 Comment: The commentor is not aware of and is also suspicious of the rationale for route selection presented in the EIS. (1, 20, 51, 59, 86)

Response: See response to RT-01.

RT-13 Comment: The commentors are landowners in the Mancos Valley, and although their land is not crossed by any existing or proposed utilities, they believe in the absolute unfairness of forcing still more utilities upon the land of the private citizens who have already given up too much. The comment indicates that the Forest Service has extensive authority to require that the line be installed and maintained in such a manner, so as to cause the least damage to the environment now and in the future. (10)

Response: See response to RT-01.

RT-14 Comment: It's expensive for the rancher and the landowner and ultimately probably more expensive to the public even if they had to go around a little bit and have to be out in sagebrush flats on BLM land, as opposed to going down irrigated real estate. (42)

Response: This expression of route variation preference is acknowledged. This comment was considered in the human/natural resource balancing evaluation that the agency technical team performed in determining the agency preferred route. Please see the response to RT-01.

RT-15 Comment: The draft EIS does not provide a complete analysis of the San Juan Variation as an alternate route and its possible options. (46)

Response: An evaluation of the San Juan Variation was conducted at an equivalent level to that conducted for the proposed and agency preferred routes in the draft EIS. A summary of the resources potentially affected and projected impacts are summarized in Appendix B, Tables B-6 and B-9 in this EIS.

RT-16 Comment: The statement in the draft EIS that the TransColorado proposed route and the agency preferred route would follow a strip of private land along the La Plata River drainage between two areas of the Southern Ute and Ute Mountain Reservations is no longer accurate. The Southern Ute Tribe has acquired a portion of that private land, which eliminates the corridor on private land. (15, 84)

Response: The text of the draft EIS has been revised to acknowledge that the pipeline route could follow the ROW for Colorado State Highway 140 and avoid Tribal land. See Chapter 4, Impacts to Socioeconomic Conditions, Tribal Lands in the final EIS.

RT-17 Comment: Location of a pipeline through the La Plata River corridor or the Animas River corridor is no longer possible without crossing Southern Ute Tribal land. Unless the Southern Ute Indian Tribal Council changes its position, the only route variations remaining is one, which extends in a southwesterly direction from the Dolores Compressor Station, in close proximity to Mesa Verde National Park, across the Ute Mountain Ute and Navajo Indian Reservations. Any approved agency route should now require as a condition or stipulation written evidence of concurrence from the affected Indian Tribe. (15, 84)

Response: See response to RT-16.

RT-18 Comment: Rio Blanco favors the proposed route in Rio Blanco County and states that this pipeline has the potential to provide significant economic benefits to Colorado as a whole and Rio Blanco County in particular. (69)

Response: Your comment is acknowledged.

RT-19 Comment: In the Summit Lake area, do not place the pipeline on Alternate J (the TransColorado Proposed Route through the national forest) since it is 10 miles longer, is forested, cuts through an area where people are building homes, has no access roads or other advantages of existing corridors and destroys another area of the county. (73)

Response: Please see response to RT-01 and also a specific discussion of the Summit Lake Area and Wright's Mesa (Avalon) under response to EC-09.

RT-20 Comment: Need to present a clear discussion of the differences between the Proposed Action and the Agency Preferred Alternative. (89)

Response: See response to RT-01 regarding the additional sections in the final EIS on the route selection process and agency preferred route decision criteria. See also the summary section, Chapter 2 text and tables, Chapter 4 text and tables, and Appendix B.

RT-21 Comment: The final EIS should document alternate routes that were evaluated and eliminated. (89)

Response: See response to RT-01 regarding the additional sections in the final EIS on the route selection process and agency preferred route decision criteria.

RT-22 Comment: Data presented within the draft EIS does not support the contention that the agency preferred route is less prone to landslides (see Figure 3-2 in the draft EIS). (89)

Response: The commentor is correct that there is an apparent lower landslide hazard associated with the draft EIS proposed route than the draft EIS agency preferred route located south of Norwood. Additional field investigations conducted subsequent to the initial agency preferred route assessment indicate that both routes would avoid known active landslide areas. An area of active slumping identified on the north side of the Disappointment Creek valley (indicated by an asterisk on Figure 3-2 in the draft EIS) has been avoided by TransColorado by rerouting the pipeline further to the east by approximately 0.10 mile. Otherwise, Figure 3-2 in the draft EIS does indicate that the agency preferred route would cross more landslide deposits than the equivalent section of the proposed route. See revised text in Chapter 3, Topography, in this final EIS.

RT-23 Comment: No discussion is presented on page 80 of the draft EIS concerning the additional impacts to private lands associated with the agency preferred route. (89)

Response: The draft EIS agency preferred route decision was made on the basis on anticipated lower natural resource impacts; conversely, socioeconomic impacts to private lands would be greater on the draft EIS agency preferred route than those identified for the proposed route as noted by the commentor. Please review the revised agency preferred route selection section presented in Chapter 2 of the final EIS.

RT-24 Comment: No discussion is presented on page 80 concerning impacts to private residences along the agency preferred route through the Mancos area (i.e., 25 residences within 500 feet of ROW versus 0 residences for TransColorado's proposed route). (89, 92)

Response: See response to RT-23.

RT-25 Comment: Table 2-17 in the draft EIS demonstrates additional impacts to farmlands and visual resources resulting from the agency preferred route. (89)

Response: See response to RT-23. This table is presented as Table 2-18 in the final EIS.

RT-26 Comment: Table 2-16 in the draft EIS does not compare the proposed route and the agency preferred route accurately. (89)

Response: The comparison contained in Table 2-16 in the draft EIS compares equivalent segments and is technically correct. However, the commentor is correct in pointing out that the important resource effect comparison is that between the points where the proposed route and agency preferred routes are different between Dolores and Mancos Hill. The draft EIS Table 2-16 has been replaced in the final EIS because a new agency preferred route segment (Modified Mancos Valley East) was selected. This modified agency preferred route in the final EIS is compared with the draft EIS proposed route in Appendix B Tables B-5 and B-11 of the final EIS.

RT-27 Comment: Appendices A and B need to be revised to explain recent route analysis and studies. (89)

Response: Appendices A and B in the final EIS reflect the route changes investigated since the public hearings held in September 1991. Specifically, a "Modified Mancos Valley East" Variation has been incorporated into the agency preferred route; and the "Redvale Variation" has also been incorporated into the agency preferred route southwest of Norwood. Comparisons among the route variations that represent alternatives to the proposed and agency preferred routes have also been provided in the final EIS.

RT-28 Comment: The EIS should provide an in-depth study of the Mancos Valley East Variation (Alternate E). (77)

Response: The Mancos Valley East Variation which is now the agency preferred route in the Mancos Valley area has been examined in equivalent detail to the proposed route.

RT-29 Comment: The last portion of the TransColorado proposed route should diagonally cross the Southern Ute Indian land in the Cinder Gulch area to avoid the agricultural land along the Shell corridor. (83)

Response: Options for relocating the pipeline onto Southern Ute Tribal lands to avoid impacts to adjacent private agricultural lands appear limited, based on the current position of the Tribal Council toward granting TransColorado a ROW.

RT-30 Comment: The Colorado River route, which TransColorado investigated, and the reasons for eliminating it should also be discussed in the final EIS. (86)

Response: The factors that were considered for eliminating the Colorado River route between DeBeque and Palisade are described in Table 1-6 and in a final EIS section entitled "Routes Considered but Eliminated" in Chapter 1.

RT-31 Comment: The reasons given in the draft EIS for eliminating the Colorado River route from detailed analysis are insufficient, and the final EIS should fully analyze this and any other routes through Mesa County, which constitute a full range of alternatives. (87)

Response: See response to RT-30.

RT-32 Comment: The EIS does not provide a detailed comparison of alternatives, does not sharply define the issues, and fails to devote substantial treatment to all reasonable alternatives. (86)

Response: The issues that were raised during scoping are described, and the issues to be addressed in the document (as well as those that are not) are clearly identified. The draft EIS devotes substantial treatment to reasonable alternatives to the proposed project, specifically in the sections entitled Conservation Alternative, Pipeline System Alternative, End Use Pipeline Alternative, and No Action. The specific alignment of the proposed route is delineated on maps located at the back of the draft EIS at a sufficient level of detail to determine land ownership and topographic features crossed. The specific alignment is also illustrated on sets of 7.5 minute USGS maps that are available in public libraries in communities potentially affected by the pipeline. See response to RT-01 regarding the route selection process.

RT-33 Comment: The draft EIS does not adequately explain the route selection process. (86)

Response: See response to RT-01.

RT-34 Comment: The criteria used to rank the various routes needs to be discussed in the EIS. (86)

Response: As noted in the response to RT-01, a system of ranking and weighing was found to be subjective and was not selected as means of justifying route selection for this project. See answer to RT-01 for the selection process used for this project.

RT-35 Comment: A more detailed analysis of the Grand Valley Variation should be included in the final EIS. (86, 87)

Response: See response to RT-01. A section has been added to the final EIS in Chapter 1 concerning the Agency Preferred Route selection process, which provides the reasons why the Grand Valley Variation was not preferred over the agency-selected route.

RT-36 Comment: The draft EIS does not present any other kinds of alternatives such as alternative ROW width or using existing utility or transportation ROWs rather than establishing new ones. (86)

Response: A fundamental route siting criterion used in this project was to parallel existing utility corridors where possible. The TransColorado proposed route would parallel existing utility facilities for 60 percent of its length; the draft EIS agency preferred route would parallel existing utility facilities for 69 percent of its length. The offset distance between the TransColorado pipeline and the adjacent utility (e.g. other pipelines, transmission lines, roads) is dictated by safety concerns, and existing ROW agreements.

RT-37 Comment: The specific route alignment must be identified in the EIS so that site-specific impacts can be evaluated. (86)

Response: See responses to RT-01 and RT-32.

RT-38 Comment: The additional 12 miles of rocky soils on the agency preferred route should be considered in the selection of the preferred route. (92)

Response: The presence of an additional 12 miles of rocky soils was a factor considered in selecting the agency preferred route; however, rocky soils can be mitigated with application of the environmental protection measures listed in Tables 2-12 and 2-14 of the final EIS. As a consequence, the presence of rocky soils was considered a contributing, but not a controlling factor in making the route selection.

RT-39 Comment: The EIS should describe the method by which heavy equipment will access and transport pipe sections to higher elevations and steep slopes. (86)

Response: The EIS has been revised to reflect the typical construction procedures that would be followed on steep ascent-descent slopes located within the proposed ROW. Review the Special Areas Construction section that addresses this concern presented in Chapter 2 of this final EIS.

RT-40 Comment: We are opposed to Alternate J because it would parallel the only entry route to our property. (75)

Response: The agency preferred route has been changed. See comment RT-01.

RT-41 Comment: The final EIS needs to address the options of TransColorado interconnecting with the San Juan Triangle or the El Paso "Y" System near New Mexico. (46)

Response: There would be insufficient available capacity in these portions of the El Paso system to accommodate an interconnection with the TransColorado pipeline.

SCOPE OF ANALYSIS AND SPECIFICITY

SC-01 Comment: Potential impacts to the Grand Mesa deserve specific attention. (86)

Response: Potential impacts to the Grand Mesa have been given more attention in this final EIS. For example, measures to protect the visual resources of the Grand Mesa have been added to Chapter 2, Environmental Protection Measures section (Table 2-12) in the final EIS, and a visual simulation was conducted specifically for the Grand Mesa (see Chapter 4, Impacts to Visual Resources in the final EIS).

SC-02 Comment: The draft EIS uses qualitative terms such as "slightly" with no quantifying data backup (see Table 2-17, Municipal Water Supply, in the draft EIS). For a site-specific environmental analysis, numbers rather than relative terms such as "slightly" are necessary. (86)

Response: The draft EIS text has been revised to avoid these terms and to quantify terms whenever possible. When impacts could not be quantified, context and intensity (CEQ Regulations 40 CFR 1508.27) were considered in describing impacts.

SC-03 Comment: The EIS should analyze the indirect effects of this project. For example, what impacts would occur as a result of future activities triggered by this pipeline. (88)

Response: The Cumulative Impacts section in the draft EIS has been revised to analyze the impacts of present and future gas development in relation to TransColorado. Review the Cumulative Impacts section in Chapter 4 of this final EIS and the response to AL-06.

SC-04 Comment: The EIS should state how the suppliers and producers would get their natural gas to the TransColorado pipeline. (77)

Response: The draft EIS text has been changed to include this information. The final EIS examines the relationship between gas supplies and the TransColorado pipeline in greater detail in the No Action and Cumulative Impacts sections of Chapter 4.

SC-05 Comment: The proposed route on the slopes of the Grand Mesa includes multiple constraints, which were not studied in detail, (e.g., visual impacts, landslide potential, drainage crossings, areas sensitive to revegetation success, municipal watersheds, etc.). These potential impacts and general protection measures to reduce or avoid impacts should be addressed in more detail. (87)

Response: The draft EIS has been revised to include more detailed information on the crossing of viewsheds, steep slopes, and rocky slopes (see the Pipeline Construction section in Chapter 2 of this final EIS). The Environmental Protection Measures section in Chapter 2 of this final EIS (Table 2-12) has been revised to include more specificity about construction and protection procedures. Environmental protection measures applicable to private and state lands are presented in Table 2-14 of this final EIS. The Chapter 4 Environmental Consequences section of the final EIS has also been revised to be more specific where applicable.

SC-06 Comment: The EIS is overly generic and needs more specific information. (86, 88)

Response: More specific information has been added throughout the final EIS. See also responses to SC-02 and SC-05.

SC-07 Comment: More detailed information needs to be provided if local citizens are to be expected to make detailed and specific comments on this pipeline proposal. (84)

Response: See responses to SC-02, SC-05, and SC-06.

SC-08 Comment: The EIS needs to describe how Questar Pipeline's new system will fit in with the proposed TransColorado pipeline. (85)

Response: Questar's upgrade of its northwest Colorado - northeast Utah pipeline system would interconnect with the TransColorado pipeline at the Piceance Creek Compressor Station (the starting point for the TransColorado pipeline). It is BLM's understanding that gas could flow into the TransColorado system, or bypass the TransColorado interconnection and flow northward into Questar's pipeline system in Wyoming and Utah, or into pipelines owned by others, including Northwest, and Colorado Interstate Gas.

SC-09 Comment: The EIS needs to be expanded to analyze impacts of related future projects triggered by TransColorado such as additional drilling and laterals, which might feed the pipeline. (86)

Response: See responses to AL-06 and SC-03.

SC-10 Comment: The EIS needs to explain the relation of this EIS to other environmental analyses not mentioned, which may exist and are relevant. It also needs to include a discussion of the environmental impacts of related federal actions occurring outside of the TransColorado pipeline itself. (85)

Response: See responses to comments AL-06 and SC-03.

SC-11 Comment: The EIS must analyze the environmental impacts of: (1) the TransColorado pipeline; (2) the entire transportation system that will be needed to transport the gas to market; (3) the gas exploration, development, and production that is stimulated by the TransColorado pipeline in the Piceance, San Juan, Uinta, Green River and Wind River Basins; and (4) the disposal of gas exploration and production wastes. (85)

Response: See responses to AL-06, SC-03, PR-51.

SC-12 Comment: The BLM is obligated by law and precedent to acknowledge the magnitude of this program and prepare a region-wide EIS. (85)

Response: Thank you for your comment. A BLM region-wide EIS is not scheduled at this time.

SC-13 Comment: The EIS should include a cumulative impact analysis on private land based on reasonably foreseeable natural gas development scenarios. (85)

Response: The Cumulative Impacts section has been revised to include this information. See this section presented in Chapter 4 of the final EIS and the responses to SC-03 and AL-06.

SC-14 Comment: The EIS needs to include and consider the impacts/conflicts of any management actions that will be included in the impending multi-agency special management area plan for the Grand Mesa Area. (86)

Response: Acknowledgement of this plan has been included in Chapter 1, Relationship to BLM and Forest Service Plans and Programs. The impending management plan that the comment refers to is presently being written cooperatively by the BLM, City of Grand Junction, and others, such as the USFS, CDOW, Colorado State Forest Service, City of Palisade, Mesa County, Museum of Western Colorado, Mesa College, and several public recreation-ecological interest groups. The plan area encompasses approximately 50 square miles of land owned or administered by BLM, USFS, the City of Palisade, the City of Grand Junction, and other private landowners. The area will be managed according to a cooperative management agreement and the management plan once they are written and approved. The proposed goals of the management plan are to protect the municipal watersheds, protect critical wildlife habitat, provide for public access, and reduce problems associated with public use such as trash dumping, unsafe target shooting, and uncontrolled motorized vehicle use.

SOILS

SO-01 Comment: Soil stability, slopes, and mitigation of soil impacts on private lands have been given no consideration in the draft EIS. (53, 59)

Response: Soil stability and slope steepness were analyzed for both public and private lands. All route corridors, preferred or alternatives, were equally inventoried for presence of unstable soils and slopes of 15 percent or greater.

SO-02 Comment: Stones on the stony, shallow soils of the City of Grand Junction watershed cannot be routinely removed by trenching equipment. (36)

Response: As stated on page 33 of the draft EIS, "A trench would be dug using trenching machines, rocksaws, backhoes, and blasting (only where necessary) to a depth of at least 60 inches and 32 to 40 inches wide." Blasting would be utilized, as necessary, in those areas having stony, shallow soils. A description of blasting procedures is contained within the Transcolorado Plan of Development. Also, see response to PR-34.

SO-03 Comment: Statistical data, which the commentor submitted as Exhibit B, clearly indicates that the Mancos corridor has the steepest slopes to deal with of any of the routes. (59)

Response: Data contained in Table 2-16 of the draft EIS show 3.8 miles of slopes greater than 40 percent for the agency preferred route (Mancos Corridor), versus 4 miles for the TransColorado proposed route. These data indicate the Mancos Corridor has less total miles of steep slopes compared to the proposed route. The data presented by the commentor apparently is a listing of the maximum slope percents at various locations along the two routes and does not contain total miles of steep slopes for comparison purposes. These data have been revised for the current routes and are currently presented in Appendix B of the final EIS.

SO-04 Comment: Detailed studies of unstable slopes and faults will not be available for the final EIS. (89)

Response: The draft EIS states that the results of some of the detailed geotechnical studies would be available for inclusion in the final EIS. Due to the fact that these studies would not be conducted until after the route is selected through the environmental process, the study results would not be available for inclusion in the final EIS. Furthermore, detailed study and site-specific design may not be necessary at all faults or unstable areas. Review the environmental protection procedures and site-specific measures presented in Tables 2-12, 2-13, and 2-14 in this final EIS.

SO-05 Comment: The Soils and Water Exception for barriers presented in Table 2-8 of the draft EIS should not be required in all cases. (89)

Response: This measure will be required and cannot be waived for the construction conditions described. See Table 2-13 in this final EIS.

SO-06 Comment: How will landslides caused by pipeline construction affect Sink Creek, Whitewater Creek, and their tributaries? (86)

Response: The description of the Grand Junction watersheds has been revised to include more detailed discussion of landslides within the basins. Due to the protection measures to be followed in areas of active landslides (see Table 2-12 and 2-14 under Topography in the final EIS), there would not be a significant potential for landsliding in the Sink Creek or Whitewater Creek basins from pipeline construction.

SO-07 Comment: The EIS needs to identify slopes that exceed 40 percent along the route in the Grand Mesa area and to analyze the safety hazards. (86)

Response: Figure 3-1 in the draft EIS identifies slopes greater than 40 percent along the entire routes, and this includes the Grand Mesa area. Safety measures as they relate to construction activities are listed in Table 2-12 of the final EIS. TransColorado's Plan of Development, dated March 1991, includes a section titled "Emergency Response Plan," which outlines procedures for responding to emergencies such as fire, explosion, or pipeline rupture.

SO-08 Comment: The EIS should describe the Grand Junction and Palisade water supply systems in greater detail, identifying water supply sources; streams, ditches, flowlines, and other forms of conveyance; diversion structures; reservoirs; treatment facilities; yield; capacity; and end uses (e.g., percentage domestic vs. agricultural). (86)

Response: Based on additional information obtained from the City of Grand Junction, the description of the Grand Junction water supply has been revised to include a description of facilities in the Sink Creek and Whitewater Creek basins. The descriptions of the water supplies for both Grand Junction and Palisade are presented in sufficient detail to determine the potential for impacts from construction of the TransColorado pipeline.

SO-09 Comment: The EIS should illustrate identified landslide areas in the Grand Mesa area along the pipeline route. (86)

Response: The commentor is referred to Figure 3-2 of the draft EIS, which shows landslide areas along the pipeline route.

SO-10 Comment: The statement that "over the long term, wind and erosion losses would not be expected to exceed those presently occurring on adjacent, undisturbed soils" (in Table 2-19 of the draft EIS) is misleading to say the least. This statement assumes ideal soil rehabilitation and revegetation conditions, which are unlikely. (86)

Response: The EIS states in the Impacts to Soil section that there may be "possible continued erosion from disturbed soils on difficult-to-revegetate areas." Difficult settings include areas of saline/alkaline soils, steep slopes, or shallow/rocky soils. Tables 2-12 and 2-14 in the final EIS present the environmental protection measures for both soil and vegetation that TransColorado will adhere to, in order to ensure maximum reclamation/revegetation success and minimum erosion loss. In addition, environmental monitoring will be conducted along the entire route during construction to ensure compliance with approved construction and environmental protection measures. Continuing revegetation efforts will be provided to ensure adequate cover until vegetation is established. A performance bond to ensure compliance with environmental protection measures will be required for ROW grants on Federal lands.

SO-11 Comment: The EIS must consider the prospects of successfully revegetating the indigenous pinyon and juniper on the Grand Mesa slopes. (86)

Response: It is thought that pinyon/juniper will reestablish naturally over the long run, taking perhaps as long as 50 years to revegetate naturally. In addition, several general protection measures will assist in the natural reestablishment of pinyon/juniper including preservation of roots within the cleared ROW as well as leaving some timber uncut. Review Tables 2-12, 2-13, and 2-14 in this final EIS.

THREATENED OR ENDANGERED SPECIES

TE-01 Comment: In Table 2-7, in the draft EIS, for Threatened and Endangered Species, the Section 7 consultation will be formal not informal, as required by 50 CFR Part 402. (89)

Response: Consultation with the USFWS is discussed in Chapter 1 of the final EIS under the Section 7 Consultation section. This is a formal consultation process.

TE-02 Comment: River otters are found in the Dolores River drainage and have been observed in the vicinity of the pipeline crossing. They are not considered to be common there. (64)

Response: This information was included in the final EIS.

TE-03 Comment: The commentor questions what is meant by "recent" in Appendix E, but the last dead lynx was taken in 1974, and the comment indicates that lynx occur at Vail and East Fork. Therefore, it is prudent to assume that lynx occur throughout suitable habitat in the state. (64)

Response: In Appendix E, under General Habitat for the North American lynx, the sentence was deleted and replaced with "potentially occurs in conifer forests above 9,000 feet."

TE-04 Comment: The southwestern willow flycatcher is likely to occur in other suitable habitats along the pipeline. Additional surveys and taxonomic work is needed to determine its status. (64, 89)

Response: The draft EIS text has been revised to indicate that the willow flycatcher is known to occur along the Gunnison River (subspecies unknown) and could occur in other riparian areas with willow greater than 5 feet in height. Refer to Chapter 3 of the final EIS.

TE-05 Comment: The Utah Milk Snake was considered a species of concern in a 1985 listing, but its unofficial designation has changes to a species of unknown status. (64)

Response: The Utah milk snake was removed from the table located in Appendix E of the final EIS.

TE-06 Comment: It is our understanding that TransColorado Gas Company will present water depletion data in a separate biological assessment for threatened and endangered species. The final EIS should mention water depletion with an explanatory statement that the analysis of depletion impacts will be covered in the biological assessment. That analysis should identify the water sources and amount of depletion. (16, 33)

Response: Concerning potential effects of water depletions on threatened and endangered fish species in the Colorado and Gunnison Rivers, the Impacts to Threatened or Endangered Species section in Chapter 4 was revised in the final EIS. Based on a conservation recommendation in the draft USFWS biological opinion (see Appendix E), a statement has been added to the final EIS. This statement (see Chapter 2, "Hydrostatic Testing") requires TransColorado to pay a one-time fee to the Upper Colorado Recovery Fund to mitigate impacts caused by any water depletions. The actual analysis of water depletions on listed fish species will be done in the final biological assessment and final biological opinion. The final biological opinion will be included in the BLM and USFS RODs.

TE-07 Comment: In Appendix E, the greater sandhill crane is considered only during the breeding season (April 1 to October 31) in Routt, Moffat, Grand, and Jackson Counties. Any birds along the pipeline route would not fit into the geographical limits. (64)

Response: The listing of sandhill cranes in Appendix E of the EIS indicates that they are only migrants along the ROW. Breeding sandhill cranes are not found in the study area.

TE-08 Comment: In Appendix E, it should be noted that Region 2 of the USFS has not yet adopted a sensitive species list. Any of the species shown as sensitive in this table, such as the Mexican Spotted Owl, are only designated for Region 3, the New Mexico portion of the route. (64)

Response: The footnotes in Appendix E of the final EIS were revised to explain that USFS Sensitive Species list was based on a draft Region 2 list of sensitive species.

TE-09 Comment: In Table 2-7 of the draft EIS, "bald eagle winter roost tree" should be defined in the glossary, and the southwestern willow flycatcher does not occupy this area, so it should be deleted from this table. (89)

Response: "Bald eagle winter roost tree" was added to the glossary of the final EIS. According to Ron Lambeth (BLM Office in Grand Junction 1992), the willow flycatcher (subspecies unknown) occurs in the study area at the Gunnison River. The southwestern willow flycatcher could occur in riparian shrub habitats crossed by the pipeline.

TE-10 Comment: In Table 2- 8 of the draft EIS under the threatened or endangered species stipulation, it may be impossible to avoid removing trees larger than 20 feet or any snags. (89)

Response: An exception is provided for those instances where large trees (taller than 20 feet) could not be avoided for logistical reasons. Table 2-8 in the draft EIS has been revised, and this exception was added, which is shown on Table 2-13 in the final EIS.

TE-11 Comment: In Table 2-8 of the draft EIS for threatened or endangered species, the stipulation regarding the Mexican Spotted Owl is misleading. It is assumed TransColorado would restrict its activities within the segment of the core area that intersects the construction ROW. (89)

Response: The stipulation for the Mexican spotted owl clearly states that TransColorado would be required to restrict activities within the core area. The stipulation would mean complete avoidance from February 1 through July 31. No more than 516 acres of the 2,000-acre area would be disturbed. This stipulation is now presented in Table 2-13 of the final EIS.

TE-12 Comment: Several threatened and endangered species, including the spineless hedgehog cactus and the Mesa Verde cactus, are not mentioned. (86)

Response: These species were not mentioned in the text because they were not observed during surveys conducted by the USFWS for this project. Chapter 3, Threatened and Endangered Species, summarizes the general results of surveys. All species with a potential for occurring within the proposed corridors are listed on Table E-1.

TE-13 Comment: The EIS states that field clearances for the black-footed ferret will be conducted in the summer. Late winter-early spring, when this species is more in evidence, is the better time to conduct these surveys. (86)

Response: Field studies for the black-footed ferret are being done according to USFWS guidelines. These guidelines describe procedures for conducting surveys in the summer and winter/early spring periods. Both surveys are acceptable, if the appropriate procedures are followed. Black-footed ferret surveys for this project are being done in late January. Summer spotlight surveys will also be completed.

TE-14 Comment: Garfield County believes the protection and mitigation of threatened and endangered plant species is not adequately addressed. The statement that "it is unclear at this time if avoidance of these plants would be possible" is indicative that further information is required. (88)

Response: A survey for Federal threatened, endangered, or candidate plants was completed by the USFWS along most of the agency preferred route during the spring of 1991. In addition, state-sensitive species, their habitat, and possible locations along the pipeline ROW were identified (see Appendix E). Areas not surveyed during 1991 will be surveyed in the spring of 1992. The results of this survey were incorporated into the draft Biological Assessment and summarized in Chapter 4, Impacts to Threatened and Endangered Species, for the agency preferred route in the final EIS. The BLM and USFS will not make a decision on the project and no RODs or any subsequent ROW grant will be issued until the final USFWS BO is received.

TE-15 Comment: A survey needs to be conducted for threatened and endangered plants, and the results of this survey needs to be placed in the final EIS. The statement needs to be made that these plants would be avoided. (84)

Response: See response to TE-14.

TRUST RESPONSIBILITIES TO INDIAN TRIBES

TR-01 Comment: It appears that the BLM has greatly underestimated its lawful duties in considering adverse impacts upon the Southern Ute Indian Tribe that could be caused by the TransColorado project. (15, 38)

Response: See responses to TR-02 and EC-01.

TR-02 Comment: Based upon the BLM's perception of its Trust Responsibility to Indian Tribes, or the lack thereof, it appears that even if the Tribe were able to convince BLM that injury would occur, BLM would be free to ignore that injury. (15)

Response: The issue of Trust Responsibility raised by the commentors centers around the question of surplus gas being transported into the San Juan basin by the TransColorado proposal. A report prepared by BLM's Colorado State Office (BLM 1991a) concludes that it is the United States' responsibility to ensure that the Southern Ute Tribe has an opportunity to compete fairly in the market place. Indian Trust Responsibility guarantees the Tribe neither a monopoly nor a market advantage. In the final analysis (Chapter 4, Impacts to Socioeconomic Conditions in the final EIS), it is concluded that the Tribe will not be unfairly affected by the approval to build the TransColorado pipeline and therefore, will not violate the Secretary's trust responsibility. See also response to EC-01, which addresses BLM's findings.

This overall issue can also be interpreted as a market issue and not an environmental issue. FERC ruled in its December 20, 1990, "Preliminary Determination on Non-Environmental Issue" that the TransColorado proposal is required by the public convenience and necessity. Further consideration of any non-environmental issues should be brought before the FERC in its continued proceeding in the TransColorado proposal.

TR-03 Comment: The Pyramid Lake Paiute case makes it clear that federal agencies have an obligation to take into consideration its fiduciary duties with respect to the decisions on lands distant from a reservation, when those decisions would have an adverse impact upon the Tribe. (38)

Response: See responses to TR-02 and EC-01.

TR-04 Comment: The economic impact on the Southern Utes is an issue of the gas market, competition, and gas prices, not Tribal lands. (89)

Response: See responses to TR-02 and EC-01.

TR-05 Comment: BLM must follow NEPA to mitigate any impacts to the southern Utes. This mitigation is the responsibility of the FERC. (89)

Response: See response to TR-02.

UTILITY CORRIDORS

UT-01 Comment: Establishing another corridor on USFS lands in the Summit Ridge area (Proposed Route, Alternate J) is aesthetically, environmentally, and economically unfounded. (51)

Response: The impacts of establishing the proposed route (Alternative J) as a corridor on the San Juan National Forest are presented in Appendix A of the final EIS. The agency preferred route in the final EIS is a combination of the Mancos Valley East Variation and the proposed route; it does not go through the Summit Ridge area.

UT-02 Comment: The commentor thought, with the approval of the Mancos Valley East Variation for the powerline, that a new corridor had been established that would eliminate most of the impacts to private land owners in the Mancos Valley. But now the commentor has been informed that the USFS has closed that route to all but the one power line. (61)

Response: The Mancos Valley East Variation follows the 345-kV transmission line, which is now designated as a utility corridor for only powerlines. In Appendix A of the final EIS, it was analyzed for use as a pipeline corridor also and found suitable for that use. The Mancos Valley East Variation is the agency preferred route in this final EIS. Also see response to UT-03.

UT-03 Comment: The Mancos Valley East Variation offers a major long-term advantage as it has the capacity to accommodate many pipelines without producing a public outcry over each new project. (46)

Response: The final EIS agency preferred route is the Mancos Valley East Variation combined with the proposed route where the two are adjacent. Appendix A in the final EIS shows the use of the route for up to four pipelines as being feasible.

UT-04 Comment: The commentor was informed that the Mancos Valley East Variation was closed and the public should not even bring it up or the USFS would come down on them. (61)

Response: See responses to UT-02 and UT-03.

UT-05 Comment: A more explicit statement is needed than what is presently contained in the draft EIS that the Mancos Valley East Variation follows high-voltage power transmission lines. (27)

Response: The text in the final EIS has been revised to present a more detailed description along the agency preferred route. Review the agency preferred route section in Chapter 1 of this final EIS.

UT-06 Comment: The TransColorado proposed route (Alternate J) will have a profound negative effect on the scenic views and the use of the San Juan National Forest. It will cause unnecessary erosion, which will cause washing of hillsides and silting of rivers and streams. It will open the forest up for more exploitation. (52)

Response: The impacts of using the proposed route (Alternative J) are shown in Chapter 4 and in Appendix A of the final EIS. Impacts to visual resources are discussed in Chapter 4 and Appendix G. See also responses to FI-01, RE-07, RE-10, and the environmental protection measures revised and presented in Tables 2-12, 2-13, and 2-14 of this final EIS.

UT-07 Comment: The commentor is opposed to another utility corridor through Montezuma County and is adamantly opposed to Alternate J, feeling that establishing a new utility corridor is aesthetically, environmentally, and economically unsound. All future utilities through the county should be placed in an existing corridor. (73, 74)

Response: The impacts of using the proposed route (Alternative J) are shown in Chapter 4 and in Appendix A of the final EIS. While the entire proposed route was found feasible for use as a utility corridor in the San Juan National Forest, the final EIS agency preferred route is a combination of the Mancos Valley East Variation and the proposed route where they are adjacent to each other. This route will generally follow an existing powerline corridor and not establish a totally new corridor in the area. Also, see response to UT-03.

UT-08 Comment: The long-term impact of creating a pipeline corridor in the Lone Cone area just doesn't make sense for San Miguel County. (95)

Response: Routing of the pipeline must consider more than one area and all the factors related to the route. A modification of the draft EIS agency preferred route around Norwood to the west is the agency preferred route presented in the final EIS. This route still follows existing powerlines through the Lone Cone area.

VISUAL RESOURCES

VS-01 Comment: The agency preferred route will be highly visible in the Mancos Valley and will be an eyesore to private land owners and to prospective purchasers of the land. (53)

Response: The agency preferred route in the Mancos Valley has been changed in this final EIS (see Chapter 2, Agency Preferred Alternative). Also, TransColorado has agreed to implement additional environmental protection measures (see Tables 2-12 and 2-14, final EIS) that would reduce visual impacts in some locations. Chapter 4 of this final EIS describes visual impacts of the new agency preferred route following application of the environmental protection measures. Discussion of the draft EIS agency preferred route in the Mancos Valley area has been moved to Appendix B and is now shown as a route variation.

VS-02 Comment: The agency preferred route would impact the San Juan Scenic Byway and, from that standpoint, would be the least desirable route. (59, 77)

Response: As indicated in Chapter 4 of the final EIS, the Dolores River crossing for the proposed and agency preferred routes would be highly visible from the State Scenic Byway (State Highway 145) for approximately 5 miles. This was considered a high visual impact.

VS-03 Comment: Put the pipeline on the TransColorado Proposed Action (Alternate J) to avoid a high visual impact in the Mancos Valley. (9, 11, 17, 18, 53)

Response: As indicated in response to VS-01, the agency preferred route in the Mancos Valley has changed in this final EIS, and new environmental protection measures have been added in Tables 2-12 and 2-14 to reduce visual impacts. As indicated in the revised impact analysis in Chapter 4 and Appendix G, the relative amounts of high visual impacts among potential routes across the Mancos Valley can be compared as follows:

Proposed Route	3.1 miles
Draft EIS Agency Proposed Route	6.7 miles
Final EIS Agency Proposed Route	1.2 miles

VS-04 Comment: Do not put the pipeline on the TransColorado Proposed Action (Alternate J), because it will impact the scenic views in the San Juan National Forest. (52)

Response: Please see response to VS-03 for a comparison of high visual impacts between the TransColorado proposed route, draft EIS agency preferred route, and final EIS agency preferred route.

VS-05 Comment: It is of concern to the Grand Junction community whether or not the TransColorado proposed route/agency preferred route on the Grand Mesa can be adequately revegetated to meet the visual quality objectives of a Class II/Retention area. (36)

Response: The Grand Mesa has been designated as VRM Class III by the BLM, not Class II. Revegetation of the entire pipeline to the point where color and texture are no longer visually evident is anticipated to take approximately 80 to 100 years, according to BLM. See responses to PR-04, RE-07, RE-10, and the environmental protection measures for Federal land that are presented in Table 2-12 of this final EIS. Reducing the ROW disturbance to 50 feet in certain areas will also help reduce the visual impacts, as well as the implementation of special measures to replant key visible sections of the ROW.

VS-06 Comment: The Grand Valley Variation will result in a long-term scar visible in the Kimball Creek drainage. (37)

Response: Moderate long-term vegetative disturbance was assessed for the Grand Valley Variation in the Grand Valley. The BLM Management Class designation in this area, however, is IV, which is the reason for the overall low visual impact assessment shown on Figure 4-1 in the draft EIS.

VS-07 Comment: The commentor is concerned about the visual impacts in the Grand Valley from the proposed pipeline. (41)

Response: Subsequent to publication of the draft EIS, a more detailed visual analysis was conducted for the Grand Mesa, and a visual simulation was developed from two of nine viewpoints in the Grand Valley. The simulations are included in Chapter 4 of the final EIS and illustrate a winter condition, which represents the most critical (highest visual contrast) seasonal condition. Also, additional environmental protection measures (such as keeping disturbance to a 50-foot minimum from MP 74.0 to MP 75.7) were added to Tables 2-12 and 2-14 in Chapter 2 of the final EIS. The new analysis (see final EIS, Chapter 4, Impacts to Visual Resources), based on the additional environmental protection measures and the visual simulation, indicates that the pipeline would be most visible from the Whitewater area and much less visible from the general Grand Junction area. It also indicates that the visual impact would be moderate from the Whitewater area but that the overall impact would be low.

VS-08 Comment: The Norwood region is at a crossroads. Avalon Mesa is Wrights Mesa's first development. To have it ruined or the Lone Cone region further decimated (as it has been by irresponsible logging)could deliver a precipitous blow both visually and economically to the entire region. (66)

Response: The draft EIS (Figure 4-1; Visual Impacts) noted the high visual contrast on the draft EIS agency preferred route through the Norwood area. A new route around the Norwood area and this subdivision has been developed for the final EIS and is utilized as the agency preferred route in the final EIS. As indicated in Chapter 4, Impacts to Visual Resources, the new agency preferred route in the Norwood area would result in high visual impacts in 1 location (1.6 miles) where the pipeline follows the road and then joins the powerline corridor.

VS-09 Comment: On Table 2-7 in the draft EIS for Visual Resources, No. 1, some limitation needs to be placed on the extent visual impacts will be mitigated. Some impacts will occur even with mitigation. (86, 89)

Response: A table that identifies the type and location of mitigation has been added to Appendix G (Table G-1) in the final EIS. These measures have been developed primarily in response to high visual impacts. It is true that despite these measures, high visual impacts would

remain in many areas. However, only those measures, which will have some noticeable effect have been added in these instances.

VS-10 Comment: On Table 2-7 in the draft EIS for Visual Resources, No. 10, powerline interference studies will dictate the necessary standoff distances between facilities. Also, safety considerations dictate a 25 to 35-foot offset from existing pipelines. Recognizing these constraints, every effort will be taken to utilize existing corridors to the maximum extent possible. (89)

Response: A table has been added to Appendix G (Table G-1) of the final EIS. This table shows the locations where the pipeline would be co-located with existing utilities. The intent of this measure is to keep such parallel facilities as close as possible, given these types of safety considerations. It is recognized that, due to safety concerns, some additional clearing would have to be done in powerline corridors in some locations where the existing clearing would not provide a safe construction ROW.

VS-11 Comment: On Table 2-7 in the draft EIS for Visual Resources, No. 11, the final alignment must be reviewed with jurisdictional agencies for visual acceptability. (89)

Response: The comment's point is understood and is part of the approval process. A table has been added to Appendix G (Table G-1) of the final EIS. This table shows the locations where this environmental protection measure would apply.

VS-12 Comment: Figure G-1 in Appendix G is missing from the draft EIS. (89)

Response: This figure was inadvertently deleted from the draft. It has been included in Appendix G of the final EIS.

VS-13 Comment: The EIS must demonstrate whether the visual impacts on the Grand Mesa from earth disturbance can be mitigated. (86)

Response: As indicated in response to VS-07, subsequent to publication of the draft EIS, a more detailed visual analysis was conducted for the Grand Mesa, and a visual simulation was developed from two of nine viewpoints in the Grand Valley. The simulations, which are included in Chapter 4, illustrate a winter condition, which represents the most critical (highest visual contrast) seasonal conditions.

Also, based on the new analysis for the Grand Mesa, it appears that the portion of the visual contrast attributable to earth form modifications can be reduced to an acceptable level, from both a BLM VRM Class III standpoint and an average viewer standpoint by reducing the ROW from 75 ft to 50 ft in width. TransColorado has agreed to reduce the construction ROW to 50 ft on Grand Mesa. In addition, the applicant has agreed to plant appropriate vegetation to blend with existing types in selected areas (see Appendix G, Table G-1).

The short-term vegetative modifications, however, will be the primary cause of noticeable modifications in this area. Long-term visual impacts will also remain noticeable due to vegetative modifications, primarily from the Whitewater area and southern portions of the Grand Valley.

VS-14 Comment: A clear-cut swath 50 to 75 feet wide up the second most used county road in the county and the access for hunters to the Lone Cone country and to anglers to Miramonte Reservoir is a scenic disaster in the making. (84)

Response: The pipeline has been rerouted in the Norwood Area (see the final EIS agency preferred route in Chapter 2) to avoid this area. Impacts of the final EIS agency preferred route are presented in Chapter 4, Impacts to Visual Resources. A more site-specific analysis of impacts is included in Appendix G, Table G-1 in the final EIS.

VS-15 Comment: The Mancos Valley East Variation would cross a scenic byway. (77)

Response: The Mancos Valley East variation, as shown in the draft EIS, is now the agency preferred route in the final EIS. As indicated in Chapter 4 of the final EIS (Agency Preferred Alternative, Impacts to Visual Resources), the portion of the San Juan Skyway Scenic Byway in the Dolores Canyon (Highway 145) would be crossed by the final EIS agency preferred route. A site-specific analysis of impacts is included in Appendix G, Table G-1 in the final EIS.

VS-16 Comment: The old growth cottonwood forest found in the Animas River Valley is unique to and unusual in the Four Corners region and deserves mention and protection from disturbance and destruction. (78)

Response: The Environmental Protection Measures section in Chapter 2 (Tables 2-12, 2-13, and 2-14) in the final EIS include measures to protect riparian areas and wetlands. These measures would help minimize impacts to old growth cottonwoods. See Tables 2-12 and 2-14 for Wetlands and Stream Crossings in this final EIS.

VS-17 Comment: Additional consideration must be given to any visual impacts in La Plata County. (83)

Response: Insofar as the EIS process, NEPA requires all alternatives to be treated in equal detail. The visual analysis was based on a standardized process, which was applied uniformly throughout the study area. It should be noted, however, that additional, more site-specific impact analysis has been conducted for visual resources since publication of the draft EIS. Please see Chapter 4, Impacts to Visual Resources, and Appendix G in this final EIS for the revised analysis.

VS-18 Comment: The EIS should address the impacts of gas development and transportation on the visual attractiveness and aesthetics of the land. (85)

Response: A more detailed cumulative impact analysis has been added to this final EIS (see Chapter 4, Cumulative Impacts section). This analysis recognizes that disturbance from existing and ongoing gas development and transportation is occurring in western Colorado and the surrounding area. This disturbance is in addition to that which would be created by the TransColorado pipeline. The cumulative analysis is qualitative rather than quantitative, based on best available information. A separate study EIS would be needed to do a more comprehensive analysis of this development.

VS-19 Comment: The draft EIS has evaluated the visual impacts on the Grand Mesa based solely on the existing BLM visual resource management classification (Class III). The Class III designation does not appear to adequately represent the importance of the Grand Mesa as a visual resource, which is one of a half-dozen most sensitive visual environments on the pipeline route. The visual objectives in these classes allow for management activities that are not visually evident and that will not attract the attention of the casual observer. (86)

Response: The BLM VRM inventory process could easily have given greater emphasis to the sensitivity of this area in arriving at its final designation. The VRM Class III designation management direction is discussed in Appendix G. See also response to VS-07.

VS-20 Comment: A pictorial analysis showing views of the affected area on the Grand Mesa in its present condition and simulated views after construction from representative vantage points needs to be included in the EIS. (86)

Response: A visual simulation has been included in the final EIS. See Chapter 4 Impacts to Visual Resources and Figures 4-1 to 4-5 in Chapter 4 of the final EIS.

VS-21 Comment: The EIS needs specific and detailed descriptions of methods and practices that would be implemented to mitigate visual impacts on the Grand Mesa and a disclosure of impacts that cannot be avoided. (86)

Response: See response to VS-07.

VS-22 Comment: The visual analysis for the Grand Mesa needs to consider the regenerative potential of existing tree species, especially the pinyon-juniper community. It also needs to consider the view in different seasons. (86)

Response: The regenerative potential of all vegetative communities have been considered as part of this analysis. Because the regenerative potential of pinyon-juniper is poor (requiring anywhere from 50-100 years), it is critical that measures be implemented to reduce disturbance and reduce the visibility of disturbance that cannot be avoided. See response to VS-07.

VS-23 Comment: The EIS visual analysis should state how long the pipeline would be visible. (86)

Response: The following information has been added to Appendix G in the final EIS. Short-term impacts were judged to be those occurring during and within the 5-year growing season following construction. Long-term visual impacts were judged to be those remaining following the 5-year growing season. For purposes of this study, the following general guidelines were used to determine the actual length of time until revegetation would reduce the visibility of the pipeline (from a vegetative standpoint) to a negligible level:

- Grassland -- 2 to 3 years
- Shrub Land -- 20 to 50 years
- Oak Brush -- 10 to 20 years
- Pinyon-Juniper -- 80 years
- Forest -- 50 years

VS-24 Comment: The visual analysis should not be based solely on existing BLM and USFS resource management classifications. (86)

Response: Appendix G describes the impact analysis methodology used in this final EIS, which is based on the BLM and USFS visual resource management classifications. Had another process been used, it would have included these basic concepts and components, which are widely accepted. This process would also include consideration of the following: scenic value of the landscape, viewer sensitivity, the physical nature of the landscape, and the resulting way in which it will respond to this type of modification and viewing conditions from nearby sensitive viewpoints. See also response to VS-19.

VS-25 Comment: The final EIS should contain the visual study referred to in Appendix G of the draft EIS. (86)

Response: Table G-1 and Figure G-1 have been added to Appendix G of the final EIS. The data collected as part of this study is voluminous and includes a notebook of field forms, over 1,200 site photos, and many analytic maps and map overlays. It would be very difficult in a reasonable amount of space to provide greater detail than has been briefly summarized in Appendix G, Table G-1 of the final EIS.

VS-26 Comment: The visual analysis depends upon an analysis of soils and vegetation, both of which are missing in this EIS. (86)

Response: The visual analysis study included the inventory and consideration of a variety of landscape components among which were vegetative and soil color/slope conditions. Because

of the extensive amount of data collected and analyzed, it is not possible to discuss in the EIS the degree to which each played in the resulting visual contrast ratings. They were, however, carefully considered.

VS-27 Comment: Garfield County Planning Department is concerned about the visual impacts in the Roan Cliffs area north of DeBeque. The draft EIS (Figure 4-1) states that the pipeline would have a high visual impact and that the visual contrast would exceed the existing BLM VRM Class II objectives for the area. The draft EIS (Chapter 3) describes this area as being of "highest visual value" and both "scenic and sensitive." (88)

Response: The high visual impacts shown in Figure 4-1 of the draft EIS reflect concerns for the Grand Valley Variation, not the proposed/agency preferred routes. The Grand Valley Variation would descend the Cliffs in an area of high visual prominence, while the proposed/agency preferred routes would descend the Cliffs in an area essentially out of public view.

VS-28 Comment: The agency preferred route could create a corridor that would completely change the character of the Oakhill area south of Norwood and completely destroy the choke cherry shrubs that parallel the Lone Cone-Miramonte road up Oak Hill. (92)

Response: See response to VS-14.

VS-29 Comment: The EIS needs to compare the visual impacts of the Proposed Action and the Agency Preferred Alternative in the Lone Cone area. (95)

Response: The agency preferred route in the Norwood area (Lone Cone area) has been changed in this final EIS (see Chapter 1, Agency Preferred Alternative). Discussion of the draft EIS agency preferred route in the Norwood area has been moved to Appendix B and is now shown as a route variation. The Proposed Action impacts and the Agency Preferred Alternative impacts presented in Chapter 4 of this final EIS describe locations where visual impacts would be high along the TransColorado proposed route and the new agency preferred route. Appendix G compares these two routes and the route variations in more detail.

WATER QUALITY AND HYDROSTATIC TESTING

WA-01 Comment: The City of Grand Junction believes the description of the Grand Junction water supply system on page 106 of the draft EIS is inadequate and does not accurately describe the portion of the City's watershed in the Whitewater Creek Basin. (36, 86)

Response: Please refer to additional new text in Chapters 3 and 4 under Municipal Watersheds and Water Supplies.

WA-02 Comment: The final EIS should disclose the potential contaminants that may be present in the pigging station discharges and what protection measures will be taken to prevent adverse environmental impacts. These discharges contain polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) and should not be discharged onto the ground around the pigging station. A plan for disposal of all discharges should be developed and presented in the final document. (33, 85)

Response: PCBs are not allowed in lubricants or other liquids in natural gas pipelines at levels in excess of 50 ppm (40 CFR 761.30{i}). Condensates are not expected to collect within the pipeline and, therefore, pigging wastes are not anticipated during operation of the pipeline. However, upon request of the US Fish and Wildlife Service (USFWS 1992) hydrostatic test water would be tested for volatile organic compounds and metallic particles. Testing and treatment methods would be reviewed by the USFWS prior to the return of any hydrostatic test waters to

the rivers. Any wastes that may be collected at pigging stations would be disposed in an environmentally acceptable manner.

WA-03 Comment: Within the pipeline, there are potential condensates that contain PAHs and PCBs, which are known to be toxic to fish and wildlife. Shut-off valves should be located closer to the stream crossing than those shown in Figure 2.1, page 31 in the draft EIS. We recommend emergency shut-off valves be placed on both sides of all river and stream crossings to protect fish and wildlife resources. (16, 33)

Response: See response to WA-02. TransColorado does not believe the low volumes of condensate expected within the pipeline warrant the placement of shut-off valves on either side of every stream containing fisheries. However, because of the concerns raised by the USFWS in their draft biological opinion (see Appendix E), the USFWS, TransColorado, and Corps of Engineers will develop special construction measures to prevent pipeline failure beneath the Animas and La Plata Rivers in New Mexico. Furthermore, it would be extremely unlikely that a leak would occur at a stream crossing and that significant quantities of condensates would be released to the environment. The reasons for the very low likelihood of release include the very low percentage (less than 1 percent) of the pipeline length that would be placed under flowing streams, and the requirements for pipeline burial below scour depth at stream crossings, and additional pipeline armoring under stream beds that are prone to excessive erosion (See Table 2-12).

WA-04 Comment: Water use (Chapter 2, Table 2-7, Page 50 of the draft EIS) outlines the procedures the project will follow to withdraw water along the project. There is no discussion of water rights or depletion amounts. The amount of depletion and the timing should be clarified for each reach. Also, how the company plans to acquire the water to test the pipeline should be outlined. (16)

Response: Please refer to Table 2-2 in the final EIS for maximum withdrawal volumes from potential water sources along the pipeline route. Water would be obtained for construction purposes through purchase form existing water right holders when and where it is available. Water purchases would be coordinated through local water commissioners. The Colorado State Engineer has a mechanism, known as Substitute or Temporary Supply Plan, which facilitates the legal issue involved with temporary transfer of a water right and, in some cases, may obviate the need to go to water court.

WA-05 Comment: The draft EIS is contradictory. It is generally stated that suspended sediment would be experienced for 1 to 5 days at stream and river crossings, but on page 164 of the draft EIS, it is stated "sedimentation increase would be temporary (several days to several weeks)...." So which is it? Are you expecting the sedimentation to disappear as soon as equipment is removed from the stream? (32)

Response: The commentor is correct in noting an inconsistency in the estimates of time that sediment impacts would occur downstream of river and stream crossings. In general, the streams to be crossed by the pipeline have bed and banks composed of coarse-grained material (sand and gravel) that is not transported as suspended sediment by the river. Therefore, there is little fine-grained material (silts and clays) available for transport as a result of construction disturbance. Most sediment impacts would disappear as soon as equipment is removed from the river. However, small amounts of fine-grained sediment may enter the river from the disturbed river banks up to several weeks after construction. This inconsistency has been corrected in the text in the final EIS sections on water resources.

WA-06 Comment: Ancillary problems related to stabilization that are not completely assessed are the period over which accelerated erosion is to be anticipated (1 to 5 years appears to be too short), and consequent impacts on water and air quality. Accelerated erosion even in the 1 to 5-year period is not discussed as a factor in either water or air quality. Stream sediment yield anywhere

in the catchment will find its way to the main streams. Particulate produced by wind erosion are not considered in assessing impacts on air quality. (68)

Response: TransColorado will adhere to soil and vegetation protection measures presented in Tables 2-12, 2-13, and 2-14 of the final EIS to ensure maximum reclamation/revegetation success and minimum erosion loss. In addition, environmental monitoring will be conducted along the entire route during construction to ensure compliance with approved construction and environmental protection measures. Continuing revegetation efforts will be provided to ensure adequate cover until vegetation is established.

The commentor is correct in stating that sediment yield anywhere in a catchment eventually reaches the main stream. However, the key question here is the rate at which the sediment is delivered to the stream given that there is a background rate of sediment delivery even in undisturbed basins. As long as a buffer of undisturbed area is maintained between the pipeline ROW and a stream, then sediment eroded from the disturbed portions of the ROW must cross the undisturbed area to reach the stream. Except in a case of extreme erosion the undisturbed area acts as a filter and traps excess sediment eroded from the disturbed area and delivers sediment to the main stream system at approximately the background rate of sediment delivery. Therefore, there would be no impact to the main stream because the rate of sediment delivery has not been changed.

WA-07 Comment: The EIS states that toxic sediments from past mining practices may be released in the San Miguel and Dolores Rivers during excavation. Nationwide Permit No. 12 could not be used for those crossings if toxic pollutants in toxic amounts are released, as this would violate a condition of the nationwide permit. (71)

Response: The BLM has written to TransColorado emphasizing the need for them to obtain necessary river and wetland crossing permits from the Corps of Engineers. The letter indicates that construction cannot begin until the necessary permits are obtained. Appendix C of the final EIS contains letters from the Albuquerque District and the Sacramento District of the Corps of Engineers, respectively. These letters identify rivers requiring special permit treatment under Section 404 permits. A section has been added to Chapter 1 under Federal Approval Process and Authorizing Actions. This section discusses COE permitting.

WA-08 Comment: Need to identify specific streams that will be crossed by the dry ditch method (flume pipe culverts) on Table 2-7 in the draft EIS. (89)

Response: Two streams that would be crossed by the proposed and agency preferred routes identified on Tables 2-3 and 2-8 of the final EIS are small enough and contain a significant fishery such that the dry ditch method (flume pipe culverts) would be used for the pipeline crossing. These streams are Willow Creek located at Milepost 8.6 and Sheep Creek located at Milepost 146.5 on the proposed route.

WA-09 Comment: Table 2-3 in the draft EIS should identify High Quality class I streams. (89)

Response: Based upon data obtained from the State of Colorado, there are no High Quality Class I streams that would be crossed by the proposed pipeline.

WA-10 Comment: On Table 2-7 in the draft EIS for Surface Water Quality #11, ". . . and 400-foot radius of all municipal water supplies" should be deleted. (89)

Response: Your comment is noted. Measure will remain as written.

WA-11 Comment: Table 4-5 in the draft EIS should state that TransColorado will comply with their NPDES permit and that water treatment will not be required. (89)

Response: Conclusion remains as written; the need for hydrostatic water treatment cannot be discounted prior to testing. Treatment of discharge water may be required and water quality and quantity release restrictions may be imposed.

WA-12 Comment: The discussion of Grand Junction's water supply system should include the status and content of the City's proposed watershed management plan and the City's plans and projections for future water supply development within the Sommerville property. (86)

Response: See response to WA-01.

WA-13 Comment: Locations of municipal water supplies in the Farmington, New Mexico area are incorrect. (78)

Response: The commentor is correct in identifying an error in relative location of the pipeline crossing of the Animas River and two municipal water supply intakes. The inlet for the Farmer's Ditch, which supplies water to the town of Farmington, New Mexico, is less than 0.75 mile downstream of the pipeline crossing. The inlet for the Lower Animas Ditch, which is an alternate intake for Aztec's water supply, is located less than 0.5 mile downstream of the pipeline crossing. This alternate intake is not presently in use. Due to the proximity of both intakes to the pipeline crossing there would likely be a significant increase in suspended sediment concentrations at the intakes during construction of the crossing and for several days or weeks after. As stated in Tables 2-12 and 2-14 in the final EIS under stream crossings, TransColorado would notify the appropriate persons and agencies within each municipality several days prior to commencement of river crossing construction. The Impacts to Municipal Watersheds and Water Supplies section in the final EIS has been revised to reflect these corrections.

WA-14 Comment: The EIS should state whether construction would cause sedimentation in the Grand Junction water supplies. (86)

Response: Due to the fact that the pipeline would cross watersheds owned by the City of Grand Junction downstream of any municipal water collection facilities, there would be no sedimentation impacts to the City's water supply system. See response to WA-01 and review the revisions to the Impacts to Municipal Watersheds and Water Supplies section in Chapter 4 of the final EIS.

WA-15 Comment: The EIS should state whether the pipeline would constrain the City's ability to capture and deliver water from the Sink Creek and Whitewater Creek drainage basins to the Grand Junction urban area. (86)

Response: The draft EIS has been revised; please refer to new text in Chapters 3 and 4 of the final EIS for Municipal Watersheds and Water Supplies for more detailed discussion of the Grand Junction Water Supply system and plans for future development of water resources in Whitewater Creek and Sink Creek. Although detailed plans are not available, it appears that in Whitewater Creek, the pipeline would be located downstream of any potential future diversions. Additionally, it appears that in Sink Creek, the pipeline would be located such that future diversion of flow into the Palisade Watershed could be accomplished without crossing the pipeline. Therefore, the pipeline would not constrain the City's ability to develop water in Sink Creek and Whitewater Creek.

WA-16 Comment: The EIS is inadequate because it does not address site-specific impacts to the Grand Junction municipal water supplies and supply system. (86)

Response: Based upon information supplied by the City of Grand Junction's Utility Manager, the description of the City's water supplies and delivery system presented in the draft EIS has been revised to include the Sink Creek and Whitewater Creek basins. The pipeline would descend from Grand Mesa approximately parallel to Sink Creek and would follow the divide between Sink Creek and Whitewater Creek. The pipeline would cross water pipelines within the Grand Junction water supply system but would otherwise not impact the system. See also responses to WA-01 and WA-15.

WA-17 Comment: The EIS should list and analyze the impacts to the groundwater supplies in the Grand Mesa watershed. (86)

Response: Due to the shallow depth of pipeline burial relative to groundwater levels, no significant impacts to groundwater are anticipated anywhere along the proposed pipeline route.

WA-18 Comment: The EIS should give the basis for the statement that there would be no long-term impacts to water supplies. (86)

Response: The pipeline ROW would be regraded to near the original contour and reclaimed with an acceptable seed mix to minimize erosion and runoff after construction of the pipeline. These environmental protection procedures are summarized in Tables 2-12 and 2-14 in the final EIS. By returning the ROW to a reclaimed state TransColorado would virtually eliminate long-term impacts to water resources. See also responses to WA-01, WA-06, WA-16, PR-04, and PR-27.

WA-19 Comment: The draft EIS states that "TransColorado will take every precaution to minimize construction. . . ." What is meant by "every precaution" and where have these precautionary measures been proven to be effective? (86)

Response: Please refer to Tables 2-12 and 2-14 in this final EIS for a listing of environmental protection measures under the subtitles of Surface Water Quality and Stream Crossings. These protection measures, many of which are proven/ standard construction techniques, constitute the precautions that will be taken by TransColorado to protect surface water resources along the proposed route.

WA-20 Comment: The EIS should treat the more important streams individually, quantify impacts of sediment loading, and provide mitigation measures for stream where sediment loading could be significant. (86)

Response: The analysis of sediment impacts presented in the EIS assumes that the potential for increased sediment loading at all stream crossings could be significant. Please refer to Tables 2-12 and 2-14 under stream crossings and surface water quality for extensive lists of environmental protection measures that will be taken at all stream crossings.

WA-21 Comment: The wetland areas along the proposed route should be delineated using the Corps wetlands delineation methodology. The approved route should avoid these delineated wetlands since the first rule under Corps method is wetlands avoidance. (86)

Response: As stated in Chapter 2 (Special Areas Construction section, Wetland Crossing subsection), the wetlands would be delineated using the Corps of Engineers delineation methods. As also stated in Chapter 2 (Special Areas Construction), the pipeline would be located to avoid wetlands where possible, and the pipeline would be constructed perpendicular to stream channels to minimize riparian and wetland disturbance.

WA-22 Comment: The EIS should quantify the potential loss of wetlands and evaluate the significance of the loss. (86)

Response: Chapter 4 indicates that no permanent loss of wetlands would occur. See also response to WA-21 and PR-16.

WA-23 Comment: The EPA believes the wetlands impacts are inconclusive. While the intent of the preferred routing is to avoid wetlands and riparian zones, it is uncertain whether the impacts are based on estimates or on-ground assessments. It appears that wetland acre impacts are underestimated. (90)

Response: See response to WA-21.

WA-24 Comment: The draft EIS states that pipeline routing would result in less than 1 percent of the wetlands in any watershed being disturbed by pipeline construction. Since this significance of this disturbance could vary depending upon where it occurred and the type/function relationship of the impacted wetland to the immediate area, the significance of this disturbance should be analyzed and disclosed. (90)

Response: The purpose of this comparison between pipeline disturbance and watershed size is to demonstrate the very small scale of the disturbance as this disturbance relates to hydrologic functions. Because wetlands will not be filled, the loss of soil functions are not expected. The changes in wetland vegetation functions have been discussed in the draft EIS. See also response to WA-21.

WA-25 Comment: The draft EIS does not adequately address impacts on water resources. While Table 2-2 in the draft EIS lists some possible sources for water for hydrostatic testing, it does not adequately address physical and legal water supply for all aspects of the project. (88)

Response: Table 2-2 in the draft EIS lists possible surface water sources that are sufficiently large to supply water for use in pipeline construction and hydrostatic testing. Please refer to Tables 2-12 and 2-14 in the final EIS, under the sub-heading of "Water Use" for environmental protection measures, which TransColorado must adhere to in obtaining water from surface water sources. See also response to WA-04.

WA-26 Comment: The EPA is concerned about the potential water quality impacts primarily related to increases in salinity from disturbance during pipeline construction of saline soils, and additional toxic sediments on water quality from past mining activities to the Dolores and San Miguel Rivers. (90)

Response: The final EIS indicates that salinity increased in the Colorado River would be minimal. Review the Chapter 4 Impacts to Surface Water Quality in the final EIS for both the proposed route and agency preferred route. Please refer to Tables 2-12 and 2-14 in the final EIS for protection measures that would be followed for crossing the Dolores and San Miguel rivers where there is a potential for contaminated sediments. Testing of the sediments would be conducted prior to construction of the pipeline crossing. If contaminated or toxic sediments are found, a plan would be developed for proper off-site disposal of the sediments and for backfill of the trench with uncontaminated material. See also response to WA-07.

WA-27 Comment: If there is a potential for increased salinity in surface waters from erosion, the EPA asks that an attempt be made to quantify this contribution to Colorado River degradation. The final EIS should break out the saline vs. alkaline soils acres and discuss the significance of any salinity impacts. (90)

Response: See response to WA-26.

WA-28 Comment: The NPS requests the EIS analyze the impacts to the Mesa Verde National Park waterline if it is crossed by a gas pipeline that is ionized. (93)

Response: Use of the term ionized is not clear, but presumably the commentor is referring to the fact that the pipeline will incorporate cathodic protection measures, which consist of electrically charging the pipe to reduce corrosion. These protection measures are focused on the gas transmission pipeline and should not negatively impact other pipelines that are crossed.

WA-29 Comment: Coalbed methane production results in many environmental impacts including damage to land and water and wildlife. The final EIS needs to discuss these impacts. (85)

Response: A detailed discussion of the effects of coalbed methane production are outside the scope of this EIS, because the project purpose is to convey natural gas by pipeline. However, the cumulative land disturbance effects of TransColorado and other projects (including coalbed methane development) have been addressed in Chapter 4 under Cumulative Impacts.

WA-30 Comment: Along with huge conventional gas development and its associated toxic wastes, huge amounts of unpotable water must be removed from coalbeds prior to methane production. (85)

Response: Detailed discussion of groundwater production and disposal from coalbed methane sources is outside the scope of this EIS, which addresses natural gas conveyance by pipeline. Treatment of disposal of wastewater is addressed in the environmental documentation for individual wellfield developments permitted by Federal agencies, primarily the BLM.

WA-31 Comment: The vague statement of impact resulting from disturbance is not supported by any hydrologic information or by any analysis of how the disturbance would affect the existing hydrology of the Palisade watershed. (86)

Response: The expected disturbance area is very small relative to the overall size of the affected watershed. As a consequence, it was concluded that the functioning of the watershed and groundwater hydrologic system would not be affected by installation of the pipeline.

WILDLIFE

WL-01 Comment: On page 163, paragraph 3, of the draft EIS it is unclear what is meant by the statement that "species composition would . . . be somewhat less. . . ." (64)

Response: This statement in the draft EIS was revised to explain that species composition of herbaceous plants would vary depending upon the revegetation mixture and re-establishment of native species.

WL-02 Comment: In the Impacts to Wildlife section in the draft EIS, it is unknown if adequate habitat exists adjacent to the ROW for displaced animals. Other factors, such as behavioral regulation of population density, would affect habitat availability. Furthermore, there may be changes in habitats as a result of the edge created by the pipeline corridor which extend into undisturbed areas. (64)

Response: The statement in Wildlife in Chapter 4 of the final EIS has been revised to clarify the availability of adjacent habitat for displaced animals. The comment makes a valid point about whether adjacent habitat would be adequate to handle all displaced animals. However, similar types of habitat may be available to be used by some of the displaced animals.

WL-03 Comment: On page 164 of the draft EIS, the results of the study cited (Sedgwick and Ryder 1987) are used out of context. The impacts of the pipeline corridor may be minor, but impact to small mammals will occur. A 75-foot wide early successional corridor may cause habitat fragmentation for some species, especially smaller, less mobile ones. It may also facilitate

movement of nest predators (raccoons and skunks) and nest parasites (brown-headed cowbird). (64)

Response: This statement from the draft EIS has been revised in Wildlife in Chapter 4 of the final EIS to note that changes in species diversity would occur on the 75-foot construction ROW. The narrow disturbance would not fragment any habitats for nongame animals. The potential of the ROW to serve as a travel lane for predators was included. The citation (Sedgwick and Ryder 1987) was corrected.

WL-04 Comment: In the Mancos Valley area, the TransColorado proposed route will result in the construction of a new road and more people will have easy access to harass game animals when food is scarce and the animals are in bad shape. (67)

Response: In reference to possible disturbance to wildlife in the Mancos Valley area, a protection measure presented in Tables 2-12 and 2-14 of the final EIS for wildlife would minimize impacts by closing all non-essential roads along the ROW. It is the intent of TransColorado to use existing roads for construction activities and, in consultation with land owners/land managers, to close all unnecessary roads after construction. The protection measure for Land Use, Zoning, and Local Communities presented in Tables 2-12 and 2-14 of the final EIS indicates that TransColorado has committed to controlling unwanted vehicle use on the ROW.

WL-05 Comment: In the Mancos Valley area, the TransColorado proposed route will go through Dry Creek Basin, Disappointment Valley, and Ryman Creek where many antelope, elk, and deer winter. (67)

Response: The draft EIS recognized the fact that Dry Creek Basin, Disappointment Valley, and Ryman Creek are important wintering areas for big game.

WL-06 Comment: The area surrounding the proposed pipeline alignment in the vicinity of Piceance Creek supports a large deer and elk population year-round. Although mule deer severe winter range is acknowledged in the draft EIS, elk are not. The elk population has shown a considerable increase in recent years, especially in the vicinity of Willow Creek and Hunter Creek. It would be desirable to minimize the disturbance to the heavily wooded slopes in these areas to protect this valuable habitat. Road access should also be minimized to the extent possible. The importance of wildlife to the local economy should also be acknowledged. (69)

Response: According to the CDOW, crucial elk summer range, not severe winter range, is crossed by the pipeline in the Piceance area. This area of crucial elk summer range (new MP 18.8 to 25.3) was added to Tables 2-15 and 2-16 in this final EIS.

WL-07 Comment: Crucial and severe wildlife habitat need specific definitions in the glossary. (89)

Response: Definitions for crucial winter and severe winter range were added to the glossary.

WL-08 Comment: The definition of wetlands is not current. (89)

Response: The term "wetlands" was added to the glossary and redefined for the Chapter 3 Wetland section in this final EIS. This definition was taken from the Clean Water Act (33 CFR 320-330 and 40 CFR 230).

WL-09 Comment: In the Impacts to Wetlands section in the draft EIS, it states that during construction, reasonable efforts will be taken to avoid mature cottonwoods along the ROW near the Colorado, San miguel, Dolores, La Plata and Animas Rivers. (89)

Response: This statement from the draft EIS has been revised to include the protection measure listed in Table 2-12 of the final EIS.

WL-10 Comment: In Appendix C of the draft EIS, the tables should be labeled as such; stream classifications should be defined; and footnotes should provide explanations. (89)

Response: Titles of Appendix Tables C-1 and C-2 were revised to "C-1" and "C-2". Stream classifications listed in Tables C-1 and C-2 were defined in the footnotes.

WL-11 Comment: The commentor questions particular data found in Tables B-3 and B-4 of Appendix B of the draft EIS. (77)

Response: Data presented in Table B-4 of the draft EIS were gathered from a variety of sources (e.g., published and unpublished CDOW reports), which represented the best available data on wildlife resources. The big game ranges represented on Hay Camp Mesa were determined from CDOW range overlay maps.

WL-12 Comment: The EIS needs to evaluate timing of construction in relation to snowmelt and spring runoff, wildlife migration, big game hunting seasons, and livestock movement to and from summer/winter pasture. (86)

Response: TransColorado has agreed to keep access roads open during construction (see Tables 2-12 and 2-14 in this final EIS). Public access would not be restricted by construction activities. The protection measures presented for wildlife in Tables 2-12, 2-13, and 2-14 would eliminate construction impacts during snowmelt, runoff, and wildlife migration periods.

WL-13 Comment: The EIS should describe the locations of the proposed construction staging areas on the Grand Mesa and analyze the impacts of these staging areas on the Grand Junction city-owned Sommerville Ranch, especially cattle ranching and recreational hunting. (86)

Response: Neither the draft nor final EIS analyzes impacts of construction on individual ranch operations.

WL-14 Comment: The Colorado Latilong Study (CDOW) indicates that the red-tailed hawk and the Swainson's hawk nest in the area of the proposed route on the Grand Mesa. The EIS should analyze the impact of the project on these species. (86)

Response: It is true that the red-tailed hawk and the Swainson's hawk nest in areas along the ROW on the Grand Mesa. These species were not discussed in the draft EIS because protection measures would avoid any active raptor nests. Protection measures include required nesting raptor survey prior to construction, restriction of construction near active nests, and notification of emergency maintenance in raptor areas (see Tables 2-12, 2-13, and 2-14). The EIS text for the Chapter 3 Nongame Wildlife section has been revised to report the results of a raptor survey that was conducted during the nesting season.

WL-15 Comment: The EIS needs to consider the cumulative impacts that TransColorado would have on wildlife considering other past, present, and reasonable foreseeable future actions. (86)

Response: See Cumulative Impacts section in Chapter 4 of the final EIS.

Index No. 3

BOARD OF COUNTY COMMISSIONERS

RIO BLANCO COUNTY COURTHOUSE
POST OFFICE BOX 599
MEEKER, COLORADO 81641

September 9, 1991

Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

RE: TransColorado Gas Transmission Project

Dear Mr. Finch:

Rio Blanco County would like to express its support of the "Proposed Route" alternative of the TransColorado Gas Transmission Project. This alternative will address the needs of Montezuma and La Plata Counties and still provide for an acceptable impact to BLM and national forest lands.

This pipeline has the potential to provide significant economic benefits to Colorado as a whole and Rio Blanco County in particular. We are concerned that an indecision on the proposed route of this pipeline will cause an additional delay in the project. It would be appreciated if the BLM and National Forest Service would consider the needs of private landowners as well as the needs of our public lands so that a project of such regional significance is not lost to indecision. The "Proposed Route" alternative is a reasonable compromise which balances the needs of both private landowners and our public lands.

If your have any questions, please call the Rio Blanco County Commissioner's office at 878-5001.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
RIO BLANCO COUNTY

BY: _____
Joe F. Collins, Chairman

_____
David H. Smith

_____
Donald L. Davis

cc: Montezuma County Commissioners
La Plata County Commissioners
Richard Chamberlain
Bob Moore (Bureau of Land Management)
William Sexton (National Forest Service)
Gary E. Cargill (National Forest Service)

JOE F. COLLINS DONALD L. DAVIS DAVID H. SMITH
MEEKER (303) 878-5001 • FAX (303) 878-5796 ••• RANGELY (303) 675-2087 • FAX (303) 675-5211

SAN MIGUEL COUNTY

BOARD OF COMMISSIONERS

JIM BEDFORD BILL WENGER CARMEN LAWRENCE

Index No. 4

September 5, 1991

Mr. Chuck Finch
Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

RE: Comments - Draft Environmental Impact Statement (DEIS)
- TransColorado Gas Transmission Project

Dear Mr. Finch:

The purpose of this letter is to advise the Bureau of Land Management that the San Miguel County Board of Commissioners ardently support the Alternate "J" Route in Montezuma County for the TransColorado pipeline route.

Our reasons have to do with mitigating impacts to:

1. private irrigated agricultural lands
2. an already over burdened corridor

RT-01 The Board of Commissioners feel that both private lands and public lands are sacred; however, public lands are the most appropriate places for this kind of activity since it is for the general public.

Sincerely,

Carmen N. Lawrence
Chair

CNL:df

cc: R. Grice
M. Horner
Dee Jacobson, Rep. Campbell's office
Files

12-trans

P.O. Box 1170 · Telluride, Colorado 81435 · (303) 728-3844

MAYNES, BRADFORD, SHIPPS & SHEFTEL
ATTORNEYS AT LAW

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FRANK E. (SAM) MAYNES
THOMAS W. SHIPPS
JANICE C. SHEFTEL
PATRICIA A. HALL
SAM W. MAYNES
MARK E. MAYNES

BYRON V. BRADFORD (1907-1988)
ALSO ADMITTED IN ARIZONA

September 24, 1991

U. S. Department of Interior
Bureau of Land Management
Montrose District Office
2465 South Townsend
Montrose, CO 81401

Re: Comments of the Southern Ute Indian Tribe Regarding Draft Environmental Impact Statement for the TransColorado Gas Transmission Project

Dear Sirs:

This document contains the written comments and response of the Southern Ute Indian Tribe to the Bureau of Land Management Draft Environmental Impact Statement (DEIS) for the TransColorado Gas Transmission Project. The Southern Ute Indian Tribe strongly opposes construction of the proposed TransColorado facility. The Tribe's opposition is based upon the Tribe's conclusion that construction of this facility will have a significant, direct negative impact on the economic livelihood of the Tribe. The Tribe's conclusion of negative impact is founded upon the well-documented fact that natural gas productive capacity in the San Juan-Rocky Mountain Region greatly exceeds the interstate pipeline capacity to major western and midwestern markets. The TransColorado Project will do nothing to ease that lack of interstate capacity, but rather will exacerbate the problem encountered by gas producers who currently face major barriers to getting their gas to market via the major El Paso and Transwestern transmission systems. The Tribe believes that the BLM's DEIS reveals a lack of understanding of the concerns raised by the Tribe; a lack of effort in attempting to understand and address these issues; and inaccurate "factual" underpinnings to the inadequate treatment afforded the Tribe's concerns. Moreover, the Tribe believes that the DEIS is flawed in other respects that have resulted in a study which yields an incomplete analysis of the impacts of the Project and the federal action needed to permit the Project to go forward.

A. Significant Events Since TransColorado Application for Federal Approval.

ME-01 Two events of major significance have occurred since commencement of the review process conducted by the BLM in compliance with the National Environmental Policy Act (NEPA). As stated in the DEIS, TransColorado filed an application for an optional certificate with the FERC on July 20, 1990,

which application received preliminary non-environmental approval on December 20, 1990. Since that time, on July 31, 1991, the FERC issued a Notice of Proposed Rulemaking in Docket No. RM91-11-000 (the "Mega NOPR"). As proprosed the "Mega NOPR" will make fundamental changes in the marketing and the transportation of natural gas in interstate markets. The "Mega NOPR" is 96-pages long and will dramatically alter pipeline transportation certificates and pipeline operations. Prior to issuance of any Final Environmental Statement by the BLM, particularly since the foundations of the DEIS rest upon TransColorado's representations of interstate markets and pipeline operations, the BLM should conduct an independent review of the "Mega NOPR" and its impacts upon the proposed TransColorado facility. It should be noted that Western Gas Interstate Company and Questar Pipeline Company are specifically listed as being required to submit plans for restructured operations and tariffs under the proposed "Mega NOPR."

RT-16 Secondly, and certainly of less global significance, the Southern Ute Indian Tribe has acquired land located within the Southern Ute Indian Reservation, previously held by a private landowner, that is located within the corridor of the Agency's Preferred Alternative. The Tribe's agent acquired a tract of land located in Section 3, Township 32 North, Range 13 West, N.M.P.M., from Mr. and Mrs. Richard Cox on June 17, 1991. Formal transfer of this property to the Tribe is reflected in a deed to the Tribe dated August 2, 1991. The DEIS states:

> The Proposed Action and the Agency Preferred Alternative would follow a strip of private land along the La Plata River drainage between two areas of the Southern Ute and Ute Mountain Reservations.

DEIS, p. 18.

The BLM's Recital is no longer accurate.

Although the Tribe disagrees with a number of the BLM's characterizations of its trust obligations set forth in that portion of the introduction designated as "Relationship to Indian Tribal Policies and Plans" (pp. 18-19), one of the BLM's conclusions is shared by the Tribe:

> The tribal council is the decision-making body for ROW permits [crossing tribal lands within the reservation]. . . . The tribal council has the right to approve or disapprove of the granting of any ROW per the Act of February 5, 1948, 62 Stat. 17 (25 USCA 323-328).

DEIS, pp. 18-19.

RT-17 The Southern Ute Indian Tribal Council does not intend to consent to the granting of right-of-way for purposes of the TransColorado Project. Location of a pipeline through the La Plata River corridor or the Animas River

corridor is no longer possible without crossing Southern Ute tribal land. Unless the Southern Ute Indian Tribal Council changes its position, the only route variation remaining is one which extends in a southwesterly direction from the Dolores Compressor Station, in close proximity to Mesa Verde National Park, across the Ute Mountain Ute and Navajo Indian Reservations. Any approved agency route should now require as a condition or stipulation written evidence of concurrence from the affected Indian tribe. Because the DEIS sets forth a preferred agency alternative which is extremely unlikely to be accepted by the Southern Ute Indian Tribe, and because a revised agency preference will impact a new set of landowners, the Tribe believes that a revised DEIS is required to comply with the public input aspects of NEPA.

B. Productive Capacity and Interstate Pipeline Capacity Constraints.

Without question the Tribe's major concern with the DEIS is that it failed to address the adverse impacts of the proposed project on gas producers in the San Juan Basin. Additionally, the BLM has determined that its trust responsibility to Indian tribes is limited to federal actions undertaken on Indian lands. The combination of these two deficiencies essentially means that the Tribe's concerns with the socio-economical impacts of the Project could be ignored by the BLM. Repeatedly throughout the DEIS, the drafters have

EC-01 included the following rather meaningless passage:

> The Southern Utes would likely experience increased competition for sales of tribal gas. However, the extent to which this increased competition would affect sales is difficult to quantify because of uncertainties in estimating available gas supplies, future market prices and future changes in pipeline capacity.

DEIS, p. vi.

TR-02 Based upon the BLM's perception of its trust responsibility to Indian tribes, or the lack thereof, it appears that even if the Tribe were able to convince BLM that injury would occur, BLM would be free to ignore that injury.

EC-01 While the level of future market prices and future changes in pipeline capacity are indeed impossible to pinpoint, the excess productive capacity of wells in the San Juan Basin relative to inadequate capacity of interstate lines to absorb that gas is clear. Unless the BLM subscribes to the position that the TransColorado line will never be used, that line will necessarily displace gas currently being produced in the San Juan Basin, including gas from Southern Ute tribal lands. Reduction in gas takes will reduce revenues. While the BLM may not wish to speculate about the degree of injury, to deny that harm will be inflicted upon the Tribe is disingenuous.

Additionally, the drafters characterize the Tribe's position as follows:

> The Southern Utes believe that the natural gas supplies transported by the TransColorado pipeline would fill the existing El Paso pipeline to capacity and that there would be no space for Ute Indian gas in the El Paso pipeline.

DEIS, at p. vi.

EC-02 The BLM drafters have misstated the concern of the Southern Ute Indian Tribe, and in so doing have trivialized the legitimate fear of the Tribe. Specifically, the current productive capacity of wells in the San Juan Basin, together with other gas being supplied at interconnects on the El Paso and Transwestern systems, already substantially exceed the pipeline capacity on those systems. Moreover, the productive capacity of the region, particularly when completed wells are connected to gathering systems, will exacerbate the deficiency in capacity of the Transwestern and El Paso systems. Proposed expansion of those systems will not absorb the increased productive capacity of the region, much of which has been realized under the direct supervision or oversight of the BLM. The TransColorado Project will either displace gas currently flowing in the El Paso and Transwestern systems, to the harm and injury of current gas suppliers and royalty recipients, or the line will serve no purpose. In either event, the issue is deserving of investigative analysis sorely lacking in the DEIS.

TR-01 Turning first to the scope of BLM's trust responsibility, case law makes it clear that the federal government must consider the effect of federal action upon tribes even if that action takes place on properties distant from reservation. As stated in Cohen's Handbook of Federal Indian Law:

> The application of ordinary trust standards to federal officials is illuminated by a significant federal district court decision, Pyramid Lake Paiute Tribe v. Morton [354 F.Supp. 252 (D.D.C. 1972)]. There, the court struck down a regulation allowing certain diversions of water for a federal reclamation project which adversely affected a downstream lake on an Indian reservation. Although the diversions violated no specific statute or treaty, the court found them in violation of the trust responsibility. The court held that the Secretary of Interior - as trustee for the tribe - was required by his trust responsibility to administer reclamation statutes in a manner which did not interfere with Indian rights. This outcome seems justified. Unless Congress has specifically directed that Indian property rights be taken, executive officials are obliged to adhere strictly to standard fiduciary principles. This includes a duty of loyalty and the corollary principle that a trustee should subordinate its own interest to those of its beneficiary.

Cohen at 227.

Thus, it appears that the Bureau of Land Management has greatly underestimated its lawful duties in considering adverse impacts upon the Southern Ute Indian Tribe that could be caused by the TransColorado Project.

Secondly, the data reported by the BLM in its DEIS related to pipeline capacities and productive well capacity contain a myriad of inaccuracies. For example, on page 127 of the DEIS, the drafters state:

> The Tribe estimates that by 1993, wells on their reservation will produce approximately 30 MMcfd of natural gas, or an average of 10.95 Bcf per year (Bruner 1991).

EC-06 This reference is a gross misstatement of information supplied to the Bureau of Land Management by Jerry Bruner, the Tribe's gas marketing official. In actuality, the Tribe estimates that tribal royalty gas will reach levels of 30 MMcfd of natural gas by 1993. Tribal royalty volumes constitute approximately five percent of the gas that's produced from wells within the Southern Ute Indian Reservation boundaries. The Tribe projects that total Ignacio-Blanco field production by 1993 will be between .8 and .9 Bcfd. Thus, the drafters have distorted the information supplied by the Tribe by a factor of 20. Additionally, on page 169 of the DEIS, the drafters have garbled information about productive capacities from wells located in different geographic areas of the San Juan Basin in a way that renders the analysis almost incomprehensible. Since receipt of the DEIS, the Southern Ute Indian Tribe has reconfirmed with representatives from the New Mexico Oil & Gas Conservation Commission estimates of conventional gas production in the San Juan Basin by 1993 of approximately 1.8 Bcfd. In addition to approximately 1,312 non-conventional wells which have been permitted in New Mexico, approximately 850 non-conventional wells have been permitted in Colorado. Coalbed methane producible from these properties is estimated by El Paso Natural Gas to produce 1.8 Bcfd by 1993. In addition to the conventional and non-conventional gas available for delivery from the San Juan Basin, existing delivery to the Transwestern and El Paso systems from outside of the San Juan Basin is approximately .475 Bcfd. These projections do not take into account the effects of successful horizontal drilling programs such as that undertaken by Meridian Oil. In the Blanco-Mesa Verde pool, production rates from one such horizontal well were approximately ten times higher than other wells in the area. The production capacity figures employed by TransColorado and the BLM simply do not correlate to the prevailing views of those who are familiar and knowledgeable about the San Juan Basin.

Ironically, in selecting the Agency's Preferred Alternative, the BLM appears to have ignored the same criteria which led the BLM to reject the End-Use Pipeline alternative discussed on page 91 of the DEIS. In rejecting the Kern River pipeline alternative, BLM recognized that the carrying capacity of the Kern River pipeline was already completely subscribed. Because of that principal factor, which may or may not survive the adoption of Mega NOPR, the BLM eliminated End-Use Pipeline alternatives from further consideration.

EC-25 The fact that the El Paso system has no excess capacity has escaped serious consideration in the DEIS.

PUR-03 The Southern Ute Indian Tribe believes that the grant of federal permission to construct a pipeline across federal lands without any assurance that such a pipeline is needed, particularly when that pipeline would cause injury to the Southern Ute Indian Tribe, constitutes irresponsible waste of federal resources and a breach of the federal government's trust responsibility to the Tribe.

Conclusion

The fact that the preferred agency route cannot be utilized without crossing Southern Ute tribal lands significantly alters the conditions which existed at the time the DEIS was being prepared. Notwithstanding that significant change in events, the Tribe believes that the BLM, which only belatedly undertook the task of evaluating production capacities versus pipeline capacities in the interstate system, has merely gone through the motions of noting the issue without conducting a thorough examination which the Tribe and other federal taxpayers deserve. In addition to these written comments, the Southern Ute Indian Tribe reserves the opportunity to supplement this statement with additional technical information prior to the expiration of the public comment period.

Respectfully submitted,

MAYNES, BRADFORD, SHIPPS & SHEFTEL

Thomas H. Shipps

Thomas H. Shipps

Attorneys for the
Southern Ute Indian Tribe

THS:sls

cc: Leonard C. Burch, Chairman
Tribal Council
Energy Resource Department
TransColorado Gas Transmission Company
Hon. Ben Nighthorse Campbell
Hon. Timothy E. Wirth
Hon. Hank Brown
Hon. Patricia Schroeder
Hon. David E. Skaggs
Hon. Wayne Allard
Hon. Joel Hefley
Hon. Dan Schaefer

Index No. 16

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
Western Colorado Sub-Office
529 25½ Road, Suite B-113
Grand Junction, CO 81505-6199
FTS 332-0351 PHONE: (303) 243-2778
FAX: (303) 245-6933

IN REPLY REFER TO:
FWE/CO:BLM-TransColorado Pipeline
MS 65412 GJ

September 19, 1991

To: Regional Director, Region 6, U.S. Fish and Wildlife Service, Denver, Colorado

From: Acting Colorado State Supervisor, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Grand Junction, Colorado

Subject: Comments regarding DEIS for TransColorado Gas Transmission Project, Piceance Basin, Rio Blanco County, CO to Blanco Plant near Bloomfield, San Juan County, NM

There is one major concern regarding the subject Draft Environmental Impact Statement (DEIS). This is in regard to plants proposed for reseeding disturbed areas along the pipeline. The Service advises that only native plant species be used for revegetation. Several of the plants listed in the DEIS as native are not native and others listed are known to be introduced. The Service will provide lists of species at the end of this response (attachment 1) that should and should not be used plus suggested alternatives.

PR-07 We would like to stress that yellow sweet clover (Melilotus officinalis) should be considered a noxious weed (as should white sweet clover (M. alba)) and should never be used for reclamation anywhere in North America. Also plants used for reclamation should be native to the parts of a state where the reclamation is to be conducted. A plant that only grows on the east slope of Colorado should not be planted on the west slope.

The DEIS appendix D listed only common names making it difficult to determine the actual species proposed for planting. Three plant books (Harrington 1964, Weber 1987, and Welsh et.al 1987) were used to determine the scientific plant names as best as possible. Janet Coles (pers. commun. 1991) from the Colorado Natural Areas Program assisted with determination of scientific plant names and suggested native plants for reclamation. Garrison's creeping foxtail and Paiute wheatgrass scientific names were never discovered and it is therefore assumed that these species are not native.

RE-10 Many of the grasses have elevational and moisture requirements which should dictate planting locations along the pipeline route. Elevational ranges can be found in the 3 references listed above. Although the suggested plants for revegetation along the pipeline route are all grasses, native shrubs and trees may be considered for planting as well.

There is no mention of where the water used for dust abatement will come from or how much water will be needed. However, it is the Fish and Wildlife Service's (Service) understanding that TransColorado will present water depletion data in a separate biological assessment for threatened and endangered species. The final EIS should

TE-06 WA-04 mention water depletion with a disclaimer announcing data presentation in the biological assessment. This data should reveal from what sources the water will come and how many acre/feet will be used from each source.

The Bureau of Land Management's route is preferred over TransColorado Gas Company's route with respect to natural resource protection. Fewer rivers will be crossed and in general less wildlife habitat will be disturbed. Other measures outlined in the subject DEIS protecting and mitigating for environmental damage appear to be adequate if followed properly.

cc: FWS/FWE-RO, Denver, Attn: Dale Hoffman
FWS/FWE, Salt Lake City
FWS/FWE, Golden
CDOW, Grand Junction
CDOW, Montrose
Forest Service, Harwood Ranger District
BLM, San Juan Resource Area
BLM, Farmington Resource Area

References

Harrington, H.D. 1964. Manual of the plants of Colorado. 2nd ed. The Swallow Press Inc., Chicago, ILL. 666pp.

Weber, W.A. 1987. Colorado flora: Western slope. Colorado Associated University Press, Boulder, CO. 530pp.

Welsh, S.L., N.D. Atwood, L.C. Higgins, and S. Goodrich. 1987.A Utah flora. Great Basin Naturalist Memoir No. 9. Brigham Young University, Provo, Utah. 894pp.

Attachment 1

Exotic plants listed in the DEIS that should not be used for reclamation

	Paiute wheatgrass
	Garrison's creeping foxtail
A. cristatum	ephraim (fairway) crested wheatgrass
A. elongatum	Jose tall wheatgrass
A. cristatum	(fairway) crested wheatgrass
Agropyron trichophorum	pubescent wheatgrass
Agropyron trichophorum	luna pubescent wheatgrass
Agropyron cristatum	Nordan crested wheatgrass
Agropyron elongatum	tall wheatgrass
Agropyron intermedium	intermediate wheatgrass
Alopecurus pratensis	meadow foxtail
Bromus japonicus	Regar meadow brome
Bromus inermis	smooth brome
Bromus japonicus	meadow brome
D. glomerata	Paiute orchardgrass
Dactylis glomerata	orchardgrass
Elymus junceus	Russian wildrye
Elymus trachycaulus	slender wheatgrass
Festuca arundinacea	tall fescue
Festuca ovina duriuscula	hard fescue
Melilotus officinalis	yellow sweet clover
P. canbyi	Canby bluegrass
Poa bulbosa	bulbous bluegrass
Poa pratensis	Kentucky bluegrass
Sanguisorba minor	small burnet

Native plants listed in the DEIS that can be used for reclamation

Agropyron dasystachyum	thickspike wheatgrass
A. riparium	streambank wheatgrass
A. smithii	western wheatgrass
Atriplex confertifolia	shadscale
A. canescens	four-wing saltbush
Bouteloua gracilis	blue grama
Bromus marginatus	mountain brome
Cercocarpus spp.	mountain mahogany
Festuca arizonica	Arizona fescue
F. idahoensis	Idaho fescue
Hilaria jamesii	Galleta
Oryzopsis hymenoides	Indian ricegrass
Sphaeralcea spp.	scarlet globe mallow
Sporobolus airoides	alkali sacaton
S. cryptandrus	sand dropseed

Additional grasses suggested for reclamation and their moisture regimes

Agropyron spicatum	bluebunch wheatgrass	mesic
Alopecurus aequalis	shortawn foxtail	hydric to mesic
A. alpinus	alpine foxtail	hydric to mesic
Bouteloua curtipendula	sideoats grama	mesic to xeric
B. gracilis	blue grama	mesic to xeric
Calamagrostis canadensis	Canada reedgrass	hydric
Catabrosa aquatica	brook grass	hydric
Danthonia parryi	Parry oatgrass	mesic
D. intermedia	Timber oatgrass	mesic to xeric
Deschampsia cespitosa	tufted hairgrass	hydric
Distichlis spicata	desert saltgrass	hydric to mesic
Elymus canadensis	Canada wildrye	hydric to mesic
E. cinereus	Great Basin wildrye	mesic to xeric
E. salinus	salina wildrye	mesic to xeric
Festuca arizonica	Arizona fescue	mesic to xeric
F. idahoensis	Idaho fescue	mesic to xeric
Hilaria jamesii	Galleta	xeric
Hordeum jubatum	foxtail barley	mesic to xeric
Koeleria macrantha	Junegrass	mesic to xeric
Muhlenbergia richardsonis	mat muhly	mesic to xeric
M. thurberi	Thurber muhly	mesic to xeric
Phleum commutatum	alpine timothy	hydric to mesic
Phragmites australis	common reedgrass	hydric
Poa agassizensis	agassi bluegrass	mesic to xeric
P. palustris	fowl bluegrass	hydric to mesic
P. secunda	Sandberg bluegrass	mesic to xeric
Spartina gracilis	alkali cordgrass	hydric to mesic
Stipa comata	needle-and-thread grass	mesic to xeric

Index No. 19

United States Department of the Interior
BUREAU OF MINES
INTERMOUNTAIN FIELD OPERATIONS CENTER
P.O. BOX 25086
BUILDING 20, DENVER FEDERAL CENTER
DENVER, COLORADO 80225

September 24, 1991

SEP 0 [illegible]
B.L.M. MONTROSE

Memorandum

To: Chuck Finch, Project Manager, Bureau of Land Management, 2465 South Townsend Avenue, Montrose, Colorado 81401

From: Acting Chief, Intermountain Field Operations Center

Subject: Review of Draft Environmental Impact Statement, TransColorado Gas Transmission Project, Colorado and New Mexico

As requested by your District Manager, personnel of the Bureau of Mines reviewed the subject document to determine if mineral resources and/or production facilities are adequately addressed.

The document identifies known mineral resources, active mineral leases, quantities of leasable resources that might be lost under the various alternative routes (both resources under lease and not currently under active lease), and acreages that would be closed to the development of mineral materials such as sand, gravel, and clay. As such, all concerns of the Bureau of Mines are adequately addressed and we have no objection to the document as presented.

For Richard B. Grabowski

ekp/rr

Index No. 25

Montezuma County
Board of Commissioners
Administration Office
Room 302 - Courthouse
109 West Main Street
Cortez, Colorado 81321-3189
(303) 565-8317

September 30, 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, Colorado 81401

Dear Mr. Finch:

This letter is in response to our discussion on the morning of September 27, 1991, following the public hearing on the Draft Environmental Impact Statement (D.E.I.S.) on the Transcolorado Gas Transmission Project on the evening of September 26.

Based on our study of the D.E.I.S., and the public comments at the hearing on September 26, we feel that Alternate E, also known as the "Mancos Valley East Variation," meets four criteria that make it the most constructive and positive alternative for everyone concerned:

1. Alternate E is clearly the best alternative based on the criteria presented in Appendix B of the D.E.I.S.
2. Alternate E minimizes the impact of the pipeline on private property owners in Montezuma County.
3. By using an alignment through the National Forest that has already been impacted by a 230 KV and 345 KV powerline corridor, Alternate E avoids impacting new areas on the Forest.
4. The fact that Alternate E has already been analyzed in the D.E.I.S. avoids potential delays in the construction of the Transcolorado Gas Transmission Pipeline.

RT-04 The Montezuma County Commissioners came to the realization that Alternate E is the best option for everyone concerned after having the opportunity to study and analyze the data presented in the D.E.I.S. and integrating this new information with the input that we have received in a substantial number of public meetings and discussions involving Montezuma County citizens.

Page 2
Mr. Chuck Finch

We need to be informed immediately of any additional information that could potentially impact our efforts to pursue Alternate E, which we consider to be in the best interests of our constituents, while avoiding delays in the project and minimizing impacts on the National Forest.

Sincerely,

Robert L. Maynes, Chairman
Montezuma County Commissioners

cc: Congressman Ben Nighthorse Campbell
Senator Tim Wirth
Senator Hank Brown
Alan Kesterke

Index No. 26

STATE OF COLORADO

DIVISION OF LOCAL GOVERNMENT
Harold A. Knott, Director

Department of Local Affairs

Roy Romer
Governor

Larry Kallenberger
Executive
Director

October 4, 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
Montrose District Office
2465 South Townsend Avenue
Montrose, CO 81401

SUBJECT: TransColorado Gas Transmission Project
Draft Environmental Impact Statement

Dear Mr. Finch:

The Colorado State Clearinghouse has received the above-referenced Draft Environmental Impact Statement and has notified interested state agencies. No comments have been received as of this date. However, should there be any late comments, we will forward them to you for your information.

Thank you for the opportunity to review this matter.

Sincerely,

Margaret Dubas

Margaret Dubas, Staff Assistant
Colorado State Clearinghouse

/md

1313 Sherman Street, Room 521, Denver, Colorado 80203 (303) 866-2156 FAX (303) 866-2251

Index No. 26

STATE OF COLORADO

DIVISION OF LOCAL GOVERNMENT
Harold A. Knott, Director

Department of Local Affairs

Roy Romer
Governor

Larry Kallenberger
Executive
Director

October 7, 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
Montrose District Office
2465 South Townsend Avenue
Montrose, CO 81401

SUBJECT: TransColorado Gas Transmission Project
Draft Environmental Impact Statement

Dear Mr. Finch:

The enclosed comments on the above-referenced Draft Environmental Impact Statement have just been received from the Colorado Department of Transportation.

Please consider this transmittal as an official addition to the letter we sent you on October 4, 1991.

Thank you for your attention.

Sincerely,

Margaret Dubas

Margaret Dubas, Staff Assistant
Colorado State Clearinghouse

/md

1313 Sherman Street, Room 521, Denver, Colorado 80203 (303) 866-2156 FAX (303) 866-2251

TRANSCOLORADO GAS TRANSMISSION PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Western Area Power Administration
Salt Lake City Area

COMMENTS

1. Page 3, PURPOSE OF AND NEED FOR THE PROJECT, third paragraph, line 4: Separate the word "orderto" to read "order to".

2. PUR-01 Page 4, TRANSCOLORADO PARTNER SYSTEMS, third paragraph, first sentence: The use of the TransColorado system has been assumed to be for industrial and electrical generation purposes. The use should be explicitly defined and factual to support the need for the project.

3. Page 7, Figure 1-3, Regional Natural Gas Production Basins: State boundaries should be better defined between Utah and Wyoming.

4. Page 8, Questar Pipeline Company, top of page, first paragraph, last sentence: The acronym (CIG) should be provided for the Colorado Interstate Gas Company since it is referred to later in the document. Other companies named and later referred to by acronyms should also be identified by acronyms where that identity does not already exist.

5. Page 10, Transwestern Pipeline Company Mainline System, third paragraph, last sentence: The sentence should be revised to read "... in-service date by December 1991."

6. Page 11, Colorado Interstate Gas Company Uinta Basin Lateral Pipeline, first sentence, first paragraph: The title "Colorado Interstate Gas Company (CIG)" identifies the acronym (CIG) properly. The acronym has been used as a reference earlier in the document and should have been identified properly at that time. Refer to comment No. 4.

7. Page 14, Table 1-2, TransColorado Gas Transmission Project - Related Projects, Notes at bottom of page: The acronyms listed for the Project Descriptions should have been used in the Project Descriptions consistently. All Project Descriptions for which acronyms were used should have had the acronyms identified in the notes.

8. AU-06 Page 15, Table 1-3, TransColorado Gas Transmission Project - Authorizing Actions, Western Area Power Administration: The conditions of approval may include agreements where the project is found to interfere with the operation and maintenance of high-voltage electric power transmission lines.

9. GE-01 Page 17, Uncompahgre Basin Resource Area (Colorado), first paragraph, first sentence: Reference is made to the San Juan/San Miguel RMP, but no stipulations are mentioned. The reference implies that there should be some stipulations.

Index No. 27

Department of Energy
Western Area Power Administration
P.O. Box 11606
Salt Lake City, UT 84147-0606

- 991

Mr. Chuck Finch
Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

Dear Mr. Finch:

Thank you for tne opportunity to review and comment on your Draft Environmental Impact Statement (DEIS) for the TransColorado Gas Transmissio Project. We reviewed the DEIS and offer the attached comments.

If there are any questions, please telephone me at FTS 588-6375 or (801) 524-6375 or Lloyd Nelson at FTS 588-5869 or (801) 524-5869.

Sincerely,

Jim Tomsic

James E. Tomsic
Assistant Area Manager
for Engineering

Enclosure

10. GE-01 Page 17, San Juan Resource Area (Colorado), first paragraph, first and second sentences: Reference is made to the San Juan/San Miguel RMP, but the stipulations are identified with the San Juan RMP. The stipulations should apply to the appropriate RMP.

11. UT-05 Page 18, San Juan National Forest, Dolores and Mancos Ranger Districts, Proposed Route, first paragraph, (1) and (2): The reference to the 230-kV and 345-kV power lines implies that the project route has been following a corridor containing high-voltage transmission lines. An explicit statement should be made that the existing utility corridor identified as the project route contains high-voltage power transmission lines.

12. Page 19, Trust Roles and Responsibilities, first paragraph, third sentence: The word "assented" should be changed to "asserted".

13. GE-06 Page 24, Issues Addressed in this Draft EIS: The listing of issues should include "Impacts to High-voltage Electric Transmission Lines and Access Roads". The issue should be appropriately addressed with respect to safety for those sections of the project located within existing transmission line corridors and with respect to access road maintenance where the project would share common access with the transmission lines. The hazards associated with work activities in the vicinity of high-voltage electric power transmission lines should also be addressed.

14. Page 49, Table 2-7, General Protection Measures, Surface Water Quality, General Construction, 12: The sentence should be revised to read "... disposal of hydrostatic test water."

15. Page 49, Table 2-7, General Protection Measures, Surface Water Quality, Stream Crossings, 3: The sentence should be revised to read "... approved by the authorized officer."

16. Page 56, Table 2-7, General Protection Measures, Land Use, Zoning, and Local Communities, 1: The sentence should be revised to read "... ROW holders, lessees, mining claimants, and any other holders of valid authorizations..."

17. Page 57, Tabel 2-7, Public Health and Safety, 4: The following sentence should be added: "Hazards associated with work activities in the vicinity of high-voltage electric power transmission lines will be identified and avoided."

18. Page 59, Table 2-8, TransColorado Gas Transmission Project - Site-Specific Environmental Protection Measures, Paleontological Resources Stipulation, first paragraph, fourth sentence: The sentence should be revised to read "... for each BLM Resource Area/National Forest: ..."

19. Page 64, Table 2-9, TransColorado Gas Transmission Project - Road and Area Closures - Proposed Action and Agency Preferred Alternative, Comments, last comment: The word "form" should be changed to "from".

2

20. Page 74, Table 2-12, TransColorado Gas Transmission Project - Pipeline System Components and Design Preferred - Agency Preferred Alternative, Component:

    Compressor Stations - Design: The word "value" should be changed to "valve".

    Block Values: The word "Values" should be changed to "Valves".

    Block Valves - Design: The word "values" should be changed to "valves".

    Pigging Facilities (cleaning) - Land Requirements - Construction/Operation: The word "values" should be changed to "valves".

21. Page 132, Table 3-12, TransColorado Gas Transmission Project - Parallel Facilities Mancos Valley Area - Proposed Action and Agency Preferred Alternative, Column Heading: The name in the heading of the first column, "Western Area Power Authority" should be changed to "Western Area Power Administration".

22. Page 132, Table 3-12, TransColorado Gas Transmission Project - Parallel Facilities Mancos Valley Area - Proposed Action and Agency Preferred Alternative, Column Heading: The name in the heading of the sixth column, "Colorado Utilities" should be changed to "Colorado-Ute Electric Association".

23. Pages R-16 and R-17, ABBREVIATIONS AND ACRONYMS: The listing should be revised to include all acronyms used in the document.

24. Page B-4, Table B-1, Land Ownership and Parallel Facilities - Grand Valley Route Variation vs. TransColorado's Proposed Route, Column Headings: The heading of the third column should be changed to "Grand Valley Variation" for consistency.

25. General: The units of the English and Metric systems of measure used throughout the document should be shown with equivalent values for both systems or a table of applicable conversions should be provided.

26. General: The document has been prepared with the emphasis being placed on the environment. There should be equal emphasis placed on the appropriate identification of the entities referenced and on the accuracy with which the facilities associated with the project are defined. **GE-05**

    Although the document may be environmentally correct, it should demonstrate that it has been prepared with appropriate knowledge and concern for accuracy in other aspects. Otherwise, the value of the entire document may be diminished.

Index No. 28

STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

4201 East Arkansas Ave.
Denver, Colorado 80222
(303) 757-9011

October 3, 1991

Ms. Margaret Dubas
State Clearinghouse
1313 Sherman Street, Room 521
Denver, Colorado 80203

Dear Ms. Dubas:

The Colorado Department of Transportation (CDOT) has completed its review of the Draft Environmental Impact Statement for the TransColorado Gas Transmission Project and has the following comments.

The Department is interested in the safety aspects of this proposal as well as maintaining traffic flow on state highways when work on the pipeline is begun. Utility permits will be required before beginning any work on highway right of way. For Delta, Garfield, Mesa, Montrose (US 50, SH 348), and Rio Blanco counties, Mr. K. Don Thompson of our District 3 office, P.O. Box 2107, Grand Junction 81502 (phone 248-7217) may be contacted to obtain these permits. For Dolores, La Plata, Montezuma, Montrose (SH 90, SH 141, SH 145), and San Miguel counties, Mr. Virgil Headrick of our District 5 office, 214 West 6th Street 81301 (phone 259-0021) is the contact person for these permits. This information should be added to Table 1-3, TransColorado Gas Transmission Project Authorizing Actions. All pipeline crossings of I 70, US 50, SH 141, and any other highways must be made by boring under the roadway. Also, all work done within CDOT right of way will require proper signing and traffic control. **AU-05** **PR-18**

The Department has requested a copy of the transportation plan for the proposed gas pipeline from BLM. We hope that this plan will provide more specific information on locations where the pipeline will cross highways as well as data on haul trucks (size, weight, number of trips per day, etc.). If further information is needed we will contact BLM. **AC-03**

On Table 3-8, TransColorado Gas Transmission Project State and Federal Haul Routes, CO-146 should be CO-141, Clifton, CO to Junction US 50.

Thank you for the opportunity to provide comments on this document.

Very truly yours,

Kenneth M. Gambrill
Manager
Office of Environmental Review and Analysis

REG/hs

cc: Chuck Finch, BLM
Larry Abbott, District 3
Carl Watson, District 5
Rich Cutler, OERA

Index No. 29

COLORADO DEPARTMENT OF HEALTH

4210 East 11th Avenue
Denver, Colorado 80220-3716
Phone (303) 320-8333

Telefax Numbers
Main Building/Denver
(303) 322-8076

Ptarmigan Place/Denver
(303) 320-1529

First National Bank Building/Denver
(303) 366-4669

Grand Junction Office
(303) 248-7198

Pueblo Office
(719) 543-8441

ROY ROMER
Governor

JOEL KOHN
Interim Executive Director

October 4, 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, Colorado 81401

Re: Draft Environmental Impact Statement for the TransColorado Gas Transmission Project

Dear Mr. Finch:

The Air Pollution Control Division of the Colorado Department of Health has reviewed the Draft Environmental Impact Statement (DEIS) for the TransColorado Gas Transmission Project. The comments of the Division relate to the impacts of the project on visibility.

Page 173 **AI-07**

The DEIS identifies that the Dolores and Dolores Alternate 2 compressor stations failed to pass the VISCREEN Level 1 visibility plume screening analysis. The Department of Interior (DOI) commits that if more realistic modeling continues to show potential visual plume impacts and if the application of technically achievable mitigation measures also is insufficient, the DOI would not approve those sites for construction. This commitment appears adequate to deal with the issue. The Division does suggest, however, that a table of VISCREEN output values for each of the compressor stations be provided.

Page vii
Page 191 **AI-05**

The Division shares concerns expressed by the National Park Service over the many small NO_x sources in the region of Mesa Verde National Park that may be cumulatively causing haze visibility, NO_x increment consumption, and atmospheric deposition effects in the area. A NO_x increment study will soon be underway in nearly the same area. The Division suggests that the Bureau of Land Management, National Park Service and the Division continue discussions to define an approach to further assess the scope of the problem.

If you have questions regarding the comments of the Division on the DEIS with regard to visibility, please contact Dan Ely at (303) 331-8529.

Sincerely,

Mall Henderson
State Implementation Plan Coordinator
Air Pollution Control Division

cc: Dan Ely

Index No. 30

ROY ROMER
Governor

JERIS A. DANIELSON
State Engineer

OFFICE OF THE STATE ENGINEER
DIVISION OF WATER RESOURCES

1313 Sherman Street-Room 818
Denver, Colorado 80203
(303) 866-3581
FAX (303) 866-3589

October 7, 1991

Mr. Chuck Finch, Project Manager
U.S. Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

Re: Transcolorado Gas Transmission Project - Draft EIS

Dear Mr. Finch:

We have reviewed the above referenced draft EIS. The proposed action is to construct, operate, and maintain a natural gas pipeline in the Rocky Mountain Region between the Pience Basin southwest of Meeker, Colorado and Broomfield, New Mexico. The report discusses a proposed action plan, an agency preferred alternative, and a no action alternative. Total disturbance of land due to the project would be 2802 acres. The pipeline would cross five major streams and 21 irrigation canals under the proposed action, and four major streams and 16 irrigation canals under the agency preferred alternative. Water would be withdrawn from the streams, where the pipeline crosses, for dust suppression and hydrostatic testing of the pipeline under pressure.

AU-03 A substitute water supply plan, approved by this office, would be required to replace any out-of-priority diversions from the streams. Well permits would be required from this office to construct new wells or to replace any existing wells. Please contact the local Water Commissioner or Division Engineer when diverting water from the stream(s).

We appreciate the opportunity to comment on the aforementioned draft EIS. If you have any questions, please contact this office.

Sincerely,

D. Rao Suvarna

D. Rao Suvarna, P.E.
Supervising Water Resources Engineer

DRS/clf:trancopi.wp
cc: Chuck Lile, Division Engineer, Water Division 7
Ed Blank, Division Engineer, Water Division 6
Orlyn Bell, Division Engineer, Water Division 5
Keith Kepler, Division Engineer, Water Division 4

Index No. 31

Colorado Chapter of The Wildlife Society

Linda Sikorowski, President
Colorado Chapter of The Wildlife Society
824 E. 22nd Ave.
Denver, CO 80205

October 4, 1991

Chuck Finch, Project Manager
Bureau of Land Management
2465 Townsend Avenue
Montrose, CO 81401

RE: Transcolorado Gas Transmission Project
Draft Environmental Impact Statement

Dear Mr. Finch:

The Colorado Chapter of The Wildlife Society (CWS) would like to commend your efforts in drafting the Transcolorado Gas Transmission Project, Draft Environmental Impact Statement (DEIS). It is obvious that much thought and effort was put forth to produce this document.

After review of the document, CWS would like to submit the following comments on the DEIS.

1. PR-14 We are concerned that buffer zones for protection of wetlands, as listed in Table 2-7 General Protection Measures, may not be sufficient. CWS would prefer that staging and petroleum storage areas be at least 200 feet from existing wetlands. If staging areas must be within 50 feet, and petroleum storage areas must be within 100 feet, it would conceivably be better if these areas were located such that any disturbance, leakage, and or leaching of hazardous substances would be away from the natural flow supplying the wetland. We would like to see stipulations governing the placement of such sites as well as existing allowable distances from wetlands.

2. PR-10 Table 2-8, Site-Specific Environmental Protection Measures, lists several timing stipulations for key winter ranges, fawning/calving areas, and nesting/breeding areas for sage grouse and waterfowl. However, no mention is made of protecting brood rearing habitats for sage grouse and waterfowl. In many cases these habitats are different from nesting breeding areas, but equally as important. CWS would like to see timing stipulations of 4-6 weeks following nesting for brood rearing habitats of sage grouse and waterfowl.

3. RT-03 Comparisons in tables 2-17 and 2-18 show substantial differences between the Proposed Route (PR) and the Agency Preferred Routes (APR) for the Norwood and Mancos areas. In most cases, the APR is the desired alternative when looked at from a wildlife perspective (acres of disturbance, miles of key range, miles of impacted habitats, etc.). It is for this reason that CWS strongly recommends that the Agency Preferred Route be selected as the desired alternative.

Sincerely,

Linda Sikorowski

Linda Sikorowski
President

Index No. 33

United States Department of the Interior
FISH AND WILDLIFE SERVICE

MAILING ADDRESS
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION
134 Union Blvd.
Lakewood, Colorado 80228

IN REPLY REFER TO:
FWE
MAIL STOP 60120

OCT

Memorandum

To: Project Manager, TransColorado Gas Transmission Project, Bureau of Land Management, 2465 South Townsend Avenue, Montrose, Colorado 81401

From: Assistant Regional Director, Fish and Wildlife Enhancement, Region 6

Subject: Draft Environmental Impact Statement, TransColorado Gas Transmission Project, Rio Blanco County, Colorado, and San Juan County, New Mexico (EC 91/96)

The Fish and Wildlife Service reviewed the subject document and offers the following comments.

PR-05 There is a major concern regarding plants proposed for reseeding disturbed areas along the pipeline. The Service advises that only native plant species be used for revegetation. Several of the plants listed as native in the draft Environmental Impact Statement are not native, and others listed are known to be introduced. A list of species that should and should not be used, plus suggested alternatives is attached (Attachment 1). We would like to stress that yellow sweet clover (Melilotus officinalis) should be considered a noxious weed (as should white sweet clover (M. alba)) and should never be used for

PR-07 reclamation anywhere in North America. Also, plants used for reclamation should be native to the parts of a State where the reclamation is to be conducted. A plant that only grows on the East Slope of Colorado should not be planted on the West Slope.

Many of the grasses have elevation and moisture requirements which should dictate planting locations along the pipeline route. Elevational ranges can be found in the three references listed below. Although the suggested plants for revegetation along the pipeline route are all grasses, native shrubs and trees may be considered for planting as well.

TE-06 There is no mention of the source or amount of water to be used for dust abatement; however, it is the Service's understanding that TransColorado Gas Company will present water depletion data in a separate biological assessment for threatened and endangered species. The final Environmental Impact Statement should mention water depletion with an explanatory statement that the analysis of depletion impacts will be covered in the biological assessment. That analysis should identify the water sources and amount of depletion.

The Bureau of Land Management's route is preferred over TransColorado Gas Company's route with respect to natural resource protection. Fewer rivers will be crossed; and, in general, less wildlife habitat will be disturbed.

PR-16 The draft Environmental Impact Statement discusses mitigation of wetlands through avoidance, minimum impact, and restoration. Mitigation of unavoidable wetland impacts may require development of replacement wetlands. The potential for such a need should be recognized and included in the final document.

PR-15 To protect streams and wetlands, we recommend all refueling or staging areas and petroleum storage facilities on Federal lands be located at least 100 feet from wetlands and streams.

WA-02 The draft Environmental Impact Statement does not address potential effects from pigging station discharges. These condensates contain polycyclic aromatic hydrocarbons (PAH's) and polychlorinated biphenyls (PCB's) and should not be discharged onto the ground around the pigging station. A plan for disposal of all discharges should be developed and presented in the final document.

Specific Comments

1. The 40 CFR, part 192, subpart J, reference on page 35 does not exist in the July 1, 1991, revision. Part 192 discusses radioactive waste and has no subpart J. Proper reference should be given, or the standards outlined, for clarification and review.

2. PR-24 WA-04 Water Use (chapter 2, table 2-7, page 50) outlines the procedures the project will follow to withdraw water along the project. There is no discussion of water rights or depletion amounts. The amount of depletion and the timing should be clarified for each reach. Also, how the company plans to acquire the water to test the pipeline should be outlined.

3. WA-02 Item 7 of Water Use in table 2-7, page 50, says water will not be discharged into ". . . HQ1 or HQ2 streams . . . ." However, there is no discussion in the text as to the quality of the water and what tests will be done to monitor and clean up any potential contaminants from the discharged water. Item 4 alludes to compliance with permit conditions. The final Environmental Impact Statement should spell out what potential contaminants may be present and what restorative actions will be taken to prevent adverse environmental impacts.

4. WA-03 PR-23 Within the pipeline, there are potential condensates that contain PAH's and PCB's which are known to be toxic to fish and wildlife. The PCB's have mutagenic, carcinogenic, and teratogenic properties. Shutoff valves should be located in closer proximity to the stream crossing than those shown in figure 2.1, page 31. We recommend emergency shutoff valves be placed on both sides of all river and stream crossings to protect fish and wildlife resources.

5. The Mancos saltbush federal classification on page E5 should be C2, not PE as shown.

PR-09

6. The draft Environmental Impact Statement, appendix D, listed only common names, making it difficult to determine the actual species proposed for planting. Three plant books (Harrington 1964, Weber 1987, and Welsh et al. 1987) were used to determine the scientific plant names as best as possible. Janet Coles (pers. commun. 1991) from the Colorado Natural Areas Program assisted with determination of scientific plant names and suggested native plants for reclamation. Garrison's creeping foxtail and Paiute wheatgrass scientific names were never discovered, and it is therefore assumed that these species are not native.

If you have any questions or need further information, please feel free to contact the Albuquerque Field Office, FTS 474-7877, Commercial (505) 883-7877, for issues in New Mexico; for issues in Colorado, contact the Colorado Suboffice, Grand Junction, Colorado, FTS 322-0351, Commercial (303) 243-2778.

ROBERT D. JACOBSEN

Attachment

References

Harrington, H.D. 1964. Manual of the plants of Colorado. 2nd ed. The Swallow Press Inc., Chicago, IL. 666 pp.

Weber, W.A. 1987. Colorado flora: Western slope. Colorado Associated University Press, Boulder, CO. 530 pp.

Welsh, S.L., N.D. Atwood, L.C. Higgins, and S. Goodrich. 1987. A Utah flora. Great Basin Naturalist Memoir No. 9. Brigham Young University, Provo, Utah. 894 pp.

Attachment 1

Exotic plants listed in the DEIS that should not be used for reclamation

	Paiute wheatgrass
	Garrison's creeping foxtail
A. cristatum	ephraim (fairway) crested wheatgrass
A. elongatum	Jose tall wheatgrass
A. cristatum	(fairway) crested wheatgrass
Agropyron trichophorum	pubescent wheatgrass
Agropyron trichophorum	luna pubescent wheatgrass
Agropyron cristatum	Nordan crested wheatgrass
Agropyron elongatum	tall wheatgrass
Agropyron intermedium	intermediate wheatgrass
Alopecurus pratensis	meadow foxtail
Bromus japonicus	Regar meadow brome
Bromus inermis	smooth brome
Bromus japonicus	meadow brome
D. glomerata	Paiute orchardgrass
Dactylis glomerata	orchardgrass
Elymus junceus	Russian wildrye
Elymus trachycaulus	slender wheatgrass
Festuca arundinacea	tall fescue
Festuca ovina duriuscula	hard fescue
Melilotus officinalis	yellow sweet clover
P. canbyi	Canby bluegrass
Poa bulbosa	bulbous bluegrass
Poa pratensis	Kentucky bluegrass
Sanguisorba minor	small burnet

Native plants listed in the DEIS that can be used for reclamation

Agropyron dasystachyum	thickspike wheatgrass
A. riparium	streambank wheatgrass
A. smithii	western wheatgrass
Atriplex confertifolia	shadscale
A. canescens	four-wing saltbush
Bouteloua gracilis	blue grama
Bromus marginatus	mountain brome
Cercocarpus spp.	mountain mahogany
Festuca arizonica	Arizona fescue
F. idahoensis	Idaho fescue
Hilaria jamesii	Galleta
Oryzopsis hymenoides	Indian ricegrass
Sphaeralcea spp.	scarlet globe mallow
Sporobolus airoides	alkali sacaton
S. cryptandrus	sand dropseed

Additional grasses suggested for reclamation and their moisture regimes

Agropyron spicatum	bluebunch wheatgrass	mesic
Alopecurus aequalis	shortawn foxtail	hydric to mesic
A. alpinus	alpine foxtail	hydric to mesic
Bouteloua curtipendula	sideoats grama	mesic to xeric
B. gracilis	blue grama	mesic to xeric
Calamagrostis canadensis	Canada reedgrass	hydric
Catabrosa aquatica	brook grass	hydric
Danthonia parryi	Parry oatgrass	mesic
D. intermedia	Timber oatgrass	mesic to xeric
Deschampsia cespitosa	tufted hairgrass	hydric
Distichlis spicata	desert saltgrass	hydric to mesic
Elymus canadensis	Canada wildrye	hydric to mesic
E. cinereus	Great Basin wildrye	mesic to xeric
E. salinus	salina wildrye	mesic to xeric
Festuca arizonica	Arizona fescue	mesic to xeric
F. idahoensis	Idaho fescue	mesic to xeric
Hilaria jamesii	Galleta	xeric
Hordeum jubatum	foxtail barley	mesic to xeric
Koeleria macrantha	Junegrass	mesic to xeric
Muhlenbergia richardsonis	mat muhly	mesic to xeric
M. thurberi	Thurber muhly	mesic to xeric
Phleum commutatum	alpine timothy	hydric to mesic
Phragmites australis	common reedgrass	hydric
Poa agassizensis	agassi bluegrass	mesic to xeric
P. palustris	fowl bluegrass	hydric to mesic
P. secunda	Sandberg bluegrass	mesic to xeric
Spartina gracilis	alkali cordgrass	hydric to mesic
Stipa comata	needle-and-thread grass	mesic to xeric

Index No. 35

Testimony for City of Grand Junction

TIM WOODMANSEE

RE-03

My name is Tim Woodmansee. I'm the property agent of the City of Grand Junction. Greg has asked me to speak before him.

The City's statements tonight will come in two parts. And we have reduced our statements to writing for the record. And this will go in addition to other statements we'll make before November 22.

Part one that I'm describing, describes the series of events involving TransColorado's work to date on the City's property, and why our relationship -- and what has occurred, should have a bearing on the final EIS, and the letter of decision.

In February of 1991, City granted TransColorado access to its property in order to conduct land surveys and engineering studies. We granted access in the spirit of cooperation and with the understanding that we would be given access and true copies to all data gathered, reports made, survey plats filed and things like that. We have received no such information other than what was contained in the Draft EIS.

On August 5th, I accompanied agents of TransColorado up to the City's property to view the proposed alignment where crossed the face of the lower bench and the Grand Mesa. At that time I was asked to comment on what I thought of the alignment and I expressed the City's concerns with installing a pipe in that geological area and stream crossings and their ability to rehabilitate the right-of-way upon completion of construction.

Rather than render a decision on that routing at all, they were told that we would give our official comments after we have had a chance to review the Draft EIS.

On August 15th of this year, the owner of B & W Guide Service who leases the hunting rights on the City's property, the Somerville Ranch, visited me and told me that the survey crew that was working for TransColorado in using chain saws had scared all of the game off the property.

I knew they should not have been up there with chain saws, and he indicated they cut a swath which he estimated to be a mile long, and over 15 feet wide.

The following day I mailed a letter to TransColorado and revoked their access rights on the property.

On August 22nd, I went up to the site with a agent from TransColorado, and he had a chance to view it himself and take his own pictures of the damage that was done. He admitted that the clearing appeared to exceed what was necessary in order for the survey to be conducted.

On August 28th of this year, the City met with officials from TransColorado and the Public Service Company. At that meeting TransColorado officials, referring to the cutting by their survey crew, stated, quote, "We recognize we went beyond the limits of our contract and we apologize for that. We apologize for not being good neighbors. We recognize we have done wrong, and we want to fix it."

On August 26th, myself, the owner of B & W Guide Service, and an agent for TransColorado, flew in a helicopter over the property to find big game. There was none.

On August 29th, I went up with the Assistant District Forester for the Colorado State Forest Service and toured the right-of-way cut by TransColorado's surveyor. The Forester stated, quote, "In my opinion, the extent of the cutting was excessive along most portions of the line. The problem was exacerbated by poor cutting techniques. The crew did a very poor job of cutting; leaving high stumps, hung-up trees, and trees partially severed and pushed over. The portions of the line that pass through merchantable stands of aspen totaled 1,364 lineal feet. The downed vegetation is over five feet deep in some areas." End quote.

RT-07

On August 30th, I few in a helicopter with the owner of B & W Guide Service, with an agent of TransColorado, and an official with the Colorado Division of Wildlife, Grand Junction Division. We saw some game on the property. But very few. And

the official with the Division of Wildlife stated that there were fewer animals on the property than should be, and that something, most likely the activities of the survey crew, had scared them away.

On September 18th, the Grand Junction City Counsel conducted a regularly scheduled meeting and conducted the following three items pertaining to the project.

Number 1: They passed on first reading an ordinance of establishing of watershed protection district for the Whitewater Creek and Kannah Creek Drainage Basins, and established procedures and standards for the issuance of Watershed District Permits. This ordinance requires any person to obtain a permit from the City prior to undertaking a variety of activities within the City's watersheds, including the installation of utilities.

Number 2: The City Council authorized the City Attorney to quantify the damages incurred on the Somerville Ranch by agents of TransColorado, and to negotiate a proposed settlement, if possible, for review by the City Council.

The item Number 3 was a proposed resolution which stated the City's official position on the preferred route. That resolution stated that we were in opposition to the preferred route. We were asked by officials from TransColorado at that meeting to table the resolution, which we did until November 6th of this year. And for tabling this resolution Council was

assurred by TransColorado they would pay the cost of hiring independent consultant to advise the City own finding of the Draft EIS. Comments and recommendations of this consultant will be integrated into the City's detailed formal comments on the Draft EIS.

In my personal one-on-one dealings with agents of TransColorado, I feel that they have dealt with myself and the City in a very courteous and professional fashion. But the foregoing events should have a bearing on final EIS, and a letter of decision in that TransColorado has demonstrated lack of control over its sub-contractors, and by virtue of the Watershed Protection Ordinance, TransColorado will be required to obtain a Watershed District Permit from the City prior to constructing a pipeline within the Whitewater Creek Drainage Basin, or the Kannah Creek Drainage Basin.

AU-04

That concludes part one of the City's comments at this hearing. Greg Trainor, Utilities Manager for the City, will cover part two. Thank you.

MR. NEISIUS: Thank you.

Does anyone have any questions? Okay.

Mr. Greg Trainor, please.

Index No. 36

Testimony for City of Grand Junction

GREG TRAINER

My name is Greg Trainer. I represent the City of Grand Junction. I'm the Utilities Manager. Our address is 250 North 5th Street, Grand Junction, Colorado.

The comments that I'm making are included in this material that we have provided to Mr. Finch.

The residents of the Grand Valley have always looked to the Grand Mesa as a symbol of its community, and to the Grand Mesa as a source of its pristine water supplies.

WA-01

In 1989, the City of Grand Junction purchased additional property in the Whitewater Creek Basin, for these purposes, for additional water supply for the City of Grand Junction; and to preserve the visual and asethetic value of the Grand Mesa.

The following comments address the long-term impact of this project and the long-tern affects that could be had on this particular property of ours. And these are summarized and quoted directly from the Draft Environmental Impact Statement.

SO-02

The pipeline as it crosses the Northwest shoulder of Grand Mesa, crosses areas of moderate to high landslide susceptibility and represent high risk of impact from pipeline construction. It's page 99 of the Draft.

Proposed and preferred routes would cross watersheds of two municipalities. That is the City of Palisade and the City of Grand Junction. These proposed crossings are in contradiction to Bureau of Land Management planned management actions. Actions which limit surface-disturbing activity of the Palisade and Grand Junction municipal watersheds, and insure that no surface occupancy be allowed on slopes greater than 40 percent. Page 105 of the Draft.

PR-27

Slopes on the City of Grand Junction watershed property exceed 40 percent. That is in Figure 3 dash 1 of the Draft.

The Description of the Grand Junction water supply system on page 106 of the Draft EIS, is inadequate as it does not accurately describe the portion of the City's watershed in the Whitewater Creek Basin. There extensive description of the Palisade watershed, but there's very little of the Grand Junction's water supply in the Whitewater Creek Basin Most of it relates to the Kannah Creek Basin. The staff of the City Utility Department is available to assist the Bureau of Land Management in making these corrections.

Soils on the affected portion of the City watershed property, in addition to being on slopes in excess of 40 percent, are stony, shallow soils -- that cannot be routinely removed by trenching equipment encountered along the route. Page 108 of the Draft.

In addition, steep facing slopes increase the soil erosion hazard; south-facing steep slopes are commonly very warm, and soil moisture is limited for plant growth. Page 108 of the Draft.

Vegetation types most frequent on the City of Grand Junction properties is Pinyon and Juniper Community, and the Mountain Shrub Community. These two communities inhabit the steep, rocky, dry, south-facing slopes facing the Grand Valley.

VS-05

It is of concern to the Grand Junction community whether or not

the proposed 75-foot cleared right-of-way can be adequately revegetated in these areas to meet the visual quality objectives of a Class II/Retention areas.

75-feet, by the way, is 50-foot wider than Horizon Drive, which probably all of us drove on to come to this building. It's a substantial section of ground that would be cleared.

Class II/Retention classification is the second highest classification that can be given to this area on the Grand Mesa. The visual objectives in these classes allow for management activities which are not visually evident and which will not attract the attention of the casual observer.

We feel that these management objectives cannot be obtained by the proposed project given the extensive width of the construction right-of-way and the steep, dry, rocky soils over which it will have to cross. Comments will be made concerning this issue from the additional work being completed by the City at this time.

PU-02 The Draft EIS does not adequately describe conditions under which this high pressure gas pipeline could rupture, what the impact would be on adjacent City water supplies as a result of spillage or repair work, or plans as to how these problems will be addressed should rupture occur.

GE-04 Short-term construction related impacts have not been adequately addressed in the Draft. Specifically for the property owned by the City. And the area encompassing our

watershed. Ingress, egress, storage yards, transportation to the site of equipment and workers, illegal hunting and camping by workers on or near City property, fuel deposits, dust, use of City water for construction, etc., are not addressed in detail. They are addressed in some very general terms that cover the entire length of the pipeline right-of-way. But nothing specific to our situation.

This project is a significant construction project, designed to serve notable, growing, populations outside of the State of Colorado. These comments are provided to insure that the local populations of the Grand Valley, and in Western Colorado, will not bear any of the expense or impact created by the desire of TransColorado to serve these profitable, out-of-state markets.

Finally, the City of Grand Junction is working with the Bureau of Land Management, Forest Service, major private landowners in the Whitewater Creek Basin, Colorado Division of Wildlife, and other recreation users, to evaluate the use of the Whitewater Creek Basin for conservation, recreation, livestock production and recreational purposes, jointly managed by the Federal, state and local agencies.

PR-28 Proposed pipeline routing down the face of Grand Mesa and the impacts that I have described are not consistent with this ongoing effort that we have with the Federal agencies to preserve the surface area.

Index No. 38

Testimony for Southern Ute Indians

TOM SHIPPS

Good evening. My name is Tom Shipps. I represent legal counsel to the Southern Ute Indian Tribe. My address is Post Office Box 2717 in Durango, Colorado.

Together with me this evening is Jerry Bruner who serves as the Southern Ute Indian Tribes gas marketing officer in the Tribe's Energy Resource Division.

Southern Ute Indian Tribes have been very active in energy resource matters and has been recognized in the United States Senate as having perhaps one of the best, if not the best, oil and gas division of any tribe in the United States. And we work very conscientiously on these matters to protect the Tribe's economic resources.

ME-01 I would like to go ahead and provide to you written comments which will pernaps be supplemented before the expiration of the public comment period. And I also have some additional comments for any persons who might be interested in those.

ME-02 The Tribe is very strongly opposed to the TransColorado

project. We think that, perhaps, if -- before we get into some of the details of that, there are at least two significant new events that occurred since the time the Draft EIS has been prepared. Or certainly during its preparation. The first has been a proposed rule that has been issued by the firm known as the Mega NOPR. That rule, or proposed rule, which was issued under Docket Number RM91 dash 11 dash 000, is a 96-page proposed rule that purports to change, in major fashion, the entire operations of gas transmission pipelines in interstate markets in the United States. We feel, and some of the comments are directed to that in our writer portion of our testimony, that the Bureau of Land Management has an obligation to see how that proposed rule is implimented, would impact the conclusions that appear to be reached with respect to the TransColorado project.

We think, particularly with respect to the analysis relating to the Kern River alternatiave, as well as some of the other conclusions reached, that it's going to have a major impact upon the viability of the TransColorado project.

AU-02 Secondly, since the preparation of the Draft EIS, Southern Ute Indian Tribe have acquired a portion of property within the preferred route, agency route, that's located within the Southern Ute Indian Reservation. There now remains no southern quarter for this pipeline that will not cross Indian land. Certainly the preferred route is not to be constructed without crossing Southern Ute Indian Tribe land.

As the Draft EIS states, in order for right-of-way to be granted across Tribal land, Tribal consent is required by Federal statute. There's no right to condemnation, the Tribe cannot be sued without waiving its soverign immunity, and the Tribe has no intention of granting a pipeline right-of-way to TransColorado.

That drastically alters the conclusions and likelihood of the preferred agency alternative being constructed. Now will require, at least based upon those alternative routes that are outlined in the EIS, that the pipeline traverse southwesterly from the Delores pumping plant, in close proximity of Mesa Verde Natural Park, then down south through the Ute Mountain Ute Indian Reservation and across the southern portion -- or, northern portion of the Navajo Indian Reservation. TR-01

We certainly would request that the Bureau of Land Management require as one of its stipulations, written evidence of consent given by any Indian tribe, whether it's prior to construction of this, or even approval, of this project going forward. AU-01

Additionally, we have a basic concern with the accuracy of projections that have been reached by the Bureau of Land Management with respect to the productive capacities of wells in the San Juan Basin, and as that relates to pipeline capacity for interstate markets on the El Paso and Transwestern System going to California and the midwest. EC-05

We feel that this report grossly underestimates the productive capacity of wells in the San Juan Basin which the producers in those areas are already very constrained in terms of getting gas to the markets. Then, this is really going to exacerbate that problem. Mr. Bruner will probably speak in more detail about that. EC-01

Secondly, the Bureau of Land Management has grossly underestimated it's trust responsibility to Indian tribes. In the Draft EIS it states that its responsibilities are limited to decisions involving Tribal lands, and their role, with respect to management of Tribal lands. TR-03

I cited in the written comments the Pyramid Lake Paiute case which makes it clear that Federal agencies have an obligation to take into consideration its fiduciary duties with respect to the decisions on lands distant from a reservation, when those decisions would have an adverse impact upon the Tribe.

We're really put in a double bind here. Not only has the Bureau of Land Management failed to recognize the injury to the Tribe, which would occur as a result of this line, but in addition to that, said even if you could establish that injury to our satisfaction, we feel no obligation as your trustee to go ahead and take that into account. That is particularly upsetting when the oil and gas developments occurred on the Southern Ute Indian Reservation; it occurred under the

supervision of the Bureau of Indian Affairs and the Bureau of Land Management.

Up until 1982, tribes were precluded from even entering into negotiations with oil and gas companies. They had to rely solely upon these Federal agencies for the granting of oil and gas leases. The Tribe has made that a cornerstone of its economy and we feel it's very disingenuous on the part of the Bureau of Land Management to respond as meaninglessly as it has in this Draft EIS with respect to the impact upon the Tribal economy that will result from this line. EC-01

I don't want to over extend my time.

MR. NEISIUS: Could you wrap it up in one minute?

MR. SHIPPS: I would like to just conclude by saying the gas right now from the San Juan Basin is being sold at approximately 20 cents less than the gas from other basins. This line is not going to take gas to California. It's going to take gas to those already over-subscribed interstate pipelines. And also it's going to do is exacerbate that problem. EC-04

Thank you, very much.

MR. BOYLE: Could you repeat the legal cite that you gave on the case?

MR. SHIPPS: Pyramid Lake Paiute Tribe. It's referred to in the written testimony and it's cited by Felix Cohen, of his Handbook of Federal Indian Law; Pyramid Lake Paiute Tribe v. Morton, 354 F. Supp. 252, District of D.C. Court, 1972.

Index No. 39

Testimony for Southern Ute Indians

MR. NEISIUS: Our next speaker is Mr. Jerry Bruner.

JERRY BRUNER

My name is Jerry Bruner. I represent the Southern Ute Indian Tribe. I'm a natural gas barterer and I'm the primary person who put together our pipeline capacity strength study, which was furnished to the Bureau of Land Management earlier this year.

In that study the information we obtained came directly from the various parties involved. El Paso Natural Gas; from Northwest Pipeline, who hauls gas back into the basin from the north from the New Mexico Oil and Gas Conservation Commission; and our own estimates in Colorado, San Juan Basin productivity.

In that study, we came to the conclusion that there would be a projected pipeline capacity short fall of point 919 Bcf per day out of the Basin after the construction of the TransColorado project. EC-03 Those numbers were based primarily on 4 point 487 Bcf a day projected supply. That was 1 point 770 Bcf a day from New Mexico on conventional gas, conventional gas from San Juan in Colorado, point 110 Bcf a day. Closing gas from San Juan in New Mexico and Colorado, 1 point 8 Bcf a day. Northwest transported deliveries to El Paso, point 475 Bcf a day. San Juan River Gas Plant which brings gas from another supplier outside of the Basin, point 032 Bcf a day. TransColorado point 3, for a total

of 4 point 487. That's compared with pipeline capacities of 3 point 568 Bcf a day. That includes, after construction of the projects currently on the boards by El Paso and TransWestern, 2 point 490 Bcf a day on El Paso; point 780 Bcf a day of TransWestern. And that's probably a little bit optimistic on TransWestern. That includes about 260 million a day of proposed, additional compression, to be added probably in the next couple of years. I'm not sure it will be there. It's not subscribed to at this point, and not approved by the F.B.R.C.

Northwest pipeline northward. Most of NorthWest gas flows to the south. They exchange out about 1065 Bcf a day to the north. That is where we came up with point 919 Bcf a day short fall.

There's currently a pipeline short fall of point 619 Bcf a day without TransColorado. If it's included says short fall will be increased to point 919 Bcf a day. According to the New Mexico Oil and Gas Commission, Bush, 1991, conventional gas production for the entire San Juan Basin will be around 1 point 1, 1 point 2, Bcf a day in 1993. EC-03

New Mexico Oil and Gas Conservation Commission believes that the Southern Ute forecast of 1 point 88 Bcf a day for conventional gas production is an optimistic figure.

My numbers came from the New Mexico Oil and Gas Conservation Commission from some folks in the natural gas marketing bureau in Santa Fe to whom we were referred by other

people within the Division.

Mr. Bush is in Aztec, New Mexico. We contacted him recently and his quote was "someone misunderstood my numbers". According to his latest estimates, he's estimating New Mexico conventional production. And these are 1993 numbers at the time TransColorado will come on stream. 1 point 8 Bcf a day, new Mexico, 1,600 wells one point 12 Bcf a day. We threw in point 110 Colorado Conventional and Colorado Coal at point 8 Bcf a day. Casinghead Gas from New Mexico at point 08 Bcf a day. That's 3 point 91 Bcf a day with no new drilling. Mr. Bush estimates there will be new drilling with a total of 4 point 13 Bcf a day from 200 additional wells and 300 conventional wells.

I think those numbers pretty well bear out what we're seeing all along. That there's just not enough capacity out of San Juan Basin to take care of the gas that's produced there, and currently contracted to be brought in the Basin and taken out by El Paso and TransWestern. EC-03

We feel at this point, if anything, the Tribe would be further damaged from our estimates back in January and then again in our update in June.

MR. NEISIUS: Thank you, Mr. Bruner.

Our next speaker is Mr. Larry Bolotti.

MR. BOLOTTI: With what has been said, I decline to speak.

MR. NEISIUS: Thank you.

Index No. 40

Testimony for Texaco and Getty Oil

My name's Becky Wheating and I work for Texaco. Texaco and Getty Oil Exploration company own fee properties and water rights in Garfield and Mesa County. Particularly along Roan Creek Valley, that will be impacted by the TransColorado proposed route.

Our concerns for the route are for our properties and for agricultural lands that are presently leased to surface lessees. Including -- Mr. Bill Prather is one of them. We're working with TransColorado at this time, in working on variations being made to the route as it is in the draft. And if those variations can be made, that will change to lower the impact on agricultural lands. Then we may not have any problems.

However, since the draft is only a draft, we were concerned about the final approved route and TransColorado advised that you give them a one mile width in which to work with their route location. At the present location, it's not acceptable. But as I said, if the variations work that we are presently working on with TransColorado, it may not be a problem. PR-21

We're concerned with the pipeline crossing at the lower end of the fields so that less property is impacted. PR-01

Also of concern is irrigation ditches which are the livlihood of this area for carrying the water. And that we would request that monitoring be made of the ditches, is if the EN-01

route is approved to verify that the ditches have been reclaimed and that the water will be able to run sufficiently to irrigate the crops once the land is reclaimed.

We just wanted to make our comments known at this point in time, that since this is a draft, we just want to be sure that we were included as being concerned of the route in its final location.

And I guess our other concern is that TransColorado has advised they can condemn us, they can't condemn the BLM. So we wanted to be sure that they were included. Hopefully, our agreement with TransColorado will be worked out, and we'll not have any problems with this.

That's basically it.

MR. NEISIUS: Thank you.

We just would like to express our concern that the TransColorado pipeline not create negative visual impact in the Grand Valley, looking up to the Grand Mesa, because of a scar from the construction of the pipeline. Especially at this time of year when you can look up and see the aspen turning color on the Mesa.

VS-07

We also want to reflect concerns expressed by Greg Trainor that the citizens of this valley not bear any of the cost of impact of this pipeline, either by the destruction of the roads because of trucks being used to transport things, or by clear cutting of the aspen forest on the Mesa -- or any other construction impact, or further impact of the gas pipeline.

We feel that since this pipeline is primarily being constructed to service markets in California, and other out-of-state areas, that local citizens should not be impacted in any negative way. And we just wanted to make a statement to that effect.

MR. NEISIUS: Thank you.

Index No. 41

Testimony for Concerned Citizens Resource Association

MR. BARRETT: My name is Angeline Barrett, and I live at 641 North 16th, in Grand Junction.

I'm a representative for Concerned Citizens Resource Association, and a Senator to the Western Colorado Congress, which is a group supporting the interests of citizens of the Western Slope for a good environment.

Index No. 43

Testimony for Montezuma County Commissioners

MR. COLBERT: My name is Tom Colbert, and I represent the Montezuma County Commissioners tonight and a lot of folks in Montezuma County. And I can't do this in five minutes. Could we please have a little more time to do it? I have a lot to talk about, and we need to cover it. It has to do with routing this pipeline, and it's very important we be heard.

MR. NEISIUS: If you could do it as expeditiously as possible, we want to make sure everybody gets a chance.

MR. COLBERT: I'll certainly do that. Montezuma and Mancos Counties have been impacted by numerous pipelines and power lines since the first Mesa Verde water line was installed in 1951. The first major pipeline to traverse Montezuma County was the Northwest Pipeline constructed in 1955, followed in later years by Shell pipeline, Mapco pipeline, and two major power lines.

Montezuma County is approximately one-third private ownership and two-thirds ownership shared by the National Forest Service, Bureau of Land Management, the National Park Service, and the Ute Mountain Ute Indian Reservation.

The majority of these public utilities have been routed in order to avoid federal lands, at the expense of at least ten additional miles of pipeline construction and expense of private land ownership in Montezuma County. Now, the ten miles I'm talking about--can you all see this map? You probably can't. The ten miles right here (indicating), this is where the pipelines have been coming. This will be the new pipeline, but here's where the pipelines have been coming. And the ten miles includes this area right through here and this area right through here.

And what we're proposing to do tonight is to come through Mancos Valley East Variation. That has been studied; it's in this EIS study. And it is the

most preferable route by the EIS; their own admissions, of the folks that did this study, this is the most preferable route of all these routes. It is 10 miles shorter than the Mancos Corridor, which is Alternate G right here.

This is the route that we propose tonight, come right through here (indicating) where the big power line crosses the mountain below and comes out there about Mancos Hill. Now, this pipeline is all on public lands. There's about four landowners that will be impacted here with this pipeline. It's already in a corridor. It's already been studied. And it crosses the very corner of public lands. This is National Forest all to the east here (indicating). And you can add two or three of these sized maps to this thing, and you'd still be on National Forest this way. It doesn't come through the middle of the National Forest. It comes through the lower southwesterly corner of the National Forest. There's four landowners impacted.

I want to talk about the J. We thought that Alternate J might be the only compromise we had. We were led to believe that (indicating) was not a doable pipeline. It most certainly is a doable pipeline. It is the most desirable of all these other routes. So the reason Alternate J is on this map is

because we thought we had to compromise, but that's not true. That's not the best route at all. This is the best route (indicating).

Alternate G here is out of the question. In 1986, the County Commissioners closed this corridor to additional pipelines, by resolution, because there was already four or five pipelines in this corridor, and those people just simply could not stand any more.

And probably there will be quite a few more pipelines. How many more pipelines can private land ownership accommodate? That's the question. So we found a route here that's already in a corridor and can be utilized and is the best one of the whole bunch. And I want to go into that and tell you why it's the best of the whole lot, just here in a minute.

We've got another chart here. Okay. This, then (indicating), is the corridor that was closed by the commissioners in 1986 because it's got four or five pipelines in it and a couple power lines. And it includes the Summit Ridge area, lower Mancos Valley, and all that. But this is mostly private land, and it's saturated right now with pipelines in the corridor. So we didn't feel it was fair to do this again and just keep doing it to these people down here.

Let's go to the flip side of that thing, what the EIS study has come up with. We're going to go through some of this stuff, to show you why this is the best. When we say "This is the best," we're talking about the East Mancos Corridor, which is Alternate F, I think, or E. Okay.

RT-04

Go down through here (indicating). We'll pick out some of the important ones. Coal formations: TransColorado pipeline, Alternate J. Agency preferred, which is Alternate G, there's 24 miles. East Mancos Variation, there's 16 miles. The Mancos Central Variation, which is this middle section down through private land, there's 24 miles.

So go down here to meadow or hay land, there's three-tenths of a mile on TransColorado proposed. There's five-hundredths of a mile on Agency proposed. There's one-hundredths of a mile on the Mancos Valley East Variation. And there's three-tenths of a mile on the Mancos Central Variation.

We'll drop on through and get through some of this. Rocky/shallow/wetland soils, 18 miles TransColorado proposed; 19 miles on the Agency preferred. There's 9 miles on the Mancos Valley East Variation. There's 16 miles on the Central Variation.

Steep ascents and descents, slopes greater

than 15, less than 40: There's 1.7 on the TransColorado. There's 1.7 on the Agency preferred. There's eight-tenths on the Mancos Valley East, and there's 2 miles on the Mancos Valley Central Variation.

Keep in mind, this is our--this is our choice right here (indicating) tonight, right here, because it's the least objectionable. And by their own study, it has the least impact on the environment. It has the least impact on the timber. It has the least impact on private land and ownerships and irrigation and all of that stuff.

We'll go down here to steep ascents. We've got that one. Steep ascents and slopes--with 40 percent slopes: There's 4 miles, 40 percent, on the TransColorado. There's 3.8 on the Agency. There's 3 miles on the East Variation and 3 on the Central.

Right here on the steep side slopes with 40 percent or greater, there's six-tenths of a mile on our route. But it's not there anymore, because we took it off. It's this area. It's this area right through here (indicating). There's steep side slopes and hillsides.

So we propose Alternate J, skip around Perry Lewis and come right on down here, off of private

land, and join up with where they want to go. It's pretty simple. It's within the corridor they've already studied. None of this has to be changed. They can pick up from here and go on. This thing is ready to go. They don't need to restudy it and go back and replow the ground.

We're down here to prime farmland: three-tenths of a mile, TransColorado's choice; 2.2 on the Agency preferred. There's zero on our choice, on the East choice; 1.5 through Central Valley.

Farmland of statewide importance, three-tenths of a mile, TransColorado; 1 mile, Agency preferred; and zero on the East side, which is our choice; with four-tenths on the Central Valley.

Agricultural land, there's six-tenths of a mile on TransColorado. The Agency preferred route, there's 3.2 miles of agricultural land. On ours, there's zero, and 2 and a half on the Mancos Valley Central.

Rangelands, there's 10.4 on TransColorado, 9.8 on the Agency preferred. And there's 15 miles on our route, and there's 11.5 miles on the Mancos Central.

Now, the reason this is so large here (indicating) is because that's less the forestland.

This, there's a lot of oak--sagebrush and oak brush and all that kind of stuff up there that needs to be cleared out, for more grazing and all that kind of thing. We think this is a real major plus. There's more of that kind of stuff on this rangeland and less big trees.

Timberlands here (indicating), there's 23 miles on TransColorado. There's 9 miles on the Agency, and there's 9 miles on our choice. So you can see where this difference comes in right here. And there's 16 miles on the Central Valley.

MR. NEISIUS: Mr. Colbert, could you get to a summary pretty soon for us, please.

MR. COLBERT: Yes. I'm trying. We're going to go on down to the deer and elk range. It's all lumped together. It's actually zero on our route.

I understand that we're going to let this study talk to us and let it determine what this pipeline is going to be.

Bald eagle, we've got one mile. The others far greater. Black-footed ferret, we have none.

Cultural resources and ruins, 4 miles; least of all. Cultural resources, this is high (indicating). This is medium. We've got 20 miles

compared to Central, which has a little less, with 16.

Visual contrast high: 0.2, which is lower than everything except Alternate J. Visual contrast, moderate: 3.5, which is right in there with--it's lower than Alternate G by quite a little.

Irrigation ditches and all that (indicating).

There's 25 residences on the Agency preferred route within 500 feet.

Okay. We'll quit that and go to a summary of this thing and say to you that--let me find it here.

UNIDENTIFIED MAN: I have a written document that I will give instead of a talk. And I would like to give my five minutes to Tom. I was Speaker No. 5 on the list.

MR. NEISIUS: Okay. Thank you.

MR. COLBERT: Okay. With respect to the Mancos Valley Central Variation, Agency preferred, and the TransColorado proposed, the issue of only addressing the acres that fall within the pipeline right-of-way is not correct, because pipeline construction affects all irrigated farmland adjacent to and below the pipeline for years to come, with respect to the reconstruction of the soil properties and the

RE-05

irrigability of the land. Clearing of right-of-way with respect to forestry would decrease forestry resources by approximately 82 acres, compared to the exact number for the Agency preferred route. So there's no difference in the amount of forestlands that we're going to impact here, as compared to here (indicating). We're still talking about 82 acres.

The East route, as we told you at the beginning, this is 10 miles shorter than the Agency preferred route. Save a lot of pipe.

The Mancos Valley East Variation, according to the Impact Statement and as we indicated earlier, would not result in vegetation loss for key mule deer range, key elk range, key antelope range, or sage grouse breeding/nesting range, and so on.

With respect to the socioeconomic impacts, the pipeline would cross zero parcels fewer than 20 acres. This compares to 3 parcels of fewer than 20 acres on the Mancos Central, compared to 25 residences on the Agency preferred route and zero residences on the TransColorado route.

With respect to cultural resources, the Mancos Valley East Variation would traverse 4 miles of high-sensitive areas and 20 miles of medium-sensitive areas; compared to Mancos Valley Central, 12 miles

high-sensitive, 60 miles of medium-sensitive. The Agency preferred route would traverse 9 miles of high-sensitive and 21 miles of medium-sensitive areas. And the TransColorado proposed would traverse 18 miles of high-sensitive, 13 miles of medium. So you see the difference.

In summary, the Draft Environmental Impact Statement has been a very successful document in studying and solving problems associated with the TransColorado gas pipeline project. First, the Mancos Valley East Variation successfully deals with the problem of affected private land. The Agency preferred route affects approximately 45 parcels of private land, the proposed TransColorado route affects approximately 25 parcels of private land, and the Mancos Valley East Variation affects approximately 4 parcels of private land. The problems associated with the agricultural irrigated land are easily mitigated with the selection of the Mancos Valley East Variation route.

RT-04

The Mancos Valley East Variation route would not affect prime farmland for this alternative, compared to 13.6 acres of prime farmland in the Mancos Valley Central, 20 acres of prime farmland and 9.1 acres of farmlands of statewide importance on the Agency preferred, and 2.7 acres of prime farmland that

is of statewide importance on the TransColorado proposed project.

With respect to the Mancos Valley Central, Agency preferred, and the TransColorado proposed, the issue of only addressing the acres that fall within the pipeline right-of-way is not correct, because pipeline construction affects all irrigated farmland adjacent to and below the pipeline, and so on and so forth. And we've gone through some of that, and we'll probably stop right there.

And I have one other thing that I would like to say, and I'd like to read to you, that in May--March 18th of 1988, our then president, Ronald Reagan, entered an executive order. And this executive order says that "The EO requires all federal departments and agencies to scrutinize much more closely than before the impact of their actions on private property and the potential financial cost of their actions. The scrutiny requires a written taking implication assessment (TIA). This order cannot prohibit takings--government's power of eminent domain--but it is directed to minimize takings. Importantly, for landowners, the executive order creates a mechanism for identifying and eliminating unnecessary and accidental takings. It solidifies, and

EM-03

through the Attorney General's implementing guidelines, it actuates--articulates the new jurisprudence for regulatory takings law."

And I would like to say that this is an alternate. If it wasn't an alternate, then I'd say take the land. But it is an alternate. There's a better choice than what you have here, very much better. So we're asking you to take it; not take the land, but take the choice. Thank you.

MR. NEISIUS: Thank you.

MR. BOYLE: Could you give the number of that executive order.

MR. COLBERT: Yes, sir. That number, Executive Order 12630.

MR. BOYLE: Thank you.

MR. COLBERT: March 18, 1988.

Index No. 45A

BEN NIGHTHORSE CAMPBELL
3D DISTRICT, COLORADO

COMMITTEES
AGRICULTURE
INTERIOR AND INSULAR AFFAIRS

Congress of the United States
House of Representatives
Washington, DC 20515

September 26, 1991

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303 243-3466

Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, Colorado 81401

Dear Mr. Finch,

Thank you for the opportunity to comment on the proposed TransColorado Pipeline Project. As you know, I have been in contact with the BLM, the U.S. Forest Service, and the Federal Energy Regulatory Commission throughout this process, most recently in requesting an extension of the Draft EIS comment period.

I appreciate the 45 day extension of time allowed for comment on the Draft EIS, as well as the addition of a hearing now scheduled for Norwood. As controversial as this project has become, I know you understand the need for complete analysis of all available input from all affected parties.

As I have said before, this is potentially a valuable project, especially for the northwest counties of the 3rd Congressional District. It cannot, however, be constructed at the undue expense of the neighbors to the southwest. The concerns of landowners, interested citizens and tribal and county representatives are paramount to the success of this project. If this pipeline is ever to be built, it will be built through careful and sensitive negotiation and an honest sharing of both the burdens and benefits energy development brings.

I hope you will give careful consideration to the comments and concerns received in the course of these hearings. The counties, cities, towns and citizens who take time to prepare for and participate in these public forums are the most important players in this process. As their representative, I will continue to monitor and remain involved through the course of the EIS.

Sincerely,

Ben Nighthorse Campbell
Member of Congress

Index No. 46

MR. SHAW: My name is Gary Shaw. I'm here this evening representing an ad hoc group of citizens who live in the Summit Lake community on Summit Ridge, Colorado. I'd like to read these following comments. Okay.

"These comments are directed specifically toward pipeline routing alternatives. However, it should be noted that a significant number of persons represented herein are not satisfied that the project necessity has been verified within the intent of the governing body of law."

Going, now, directly to the routing alternatives, the priority Montezuma County No. 1 that this group of people feels like would be the most available route is the Mancos Valley East Variation. It is the only routing alternative analyzed in the draft EIS which offers a viable solution to the issues

RT-04

RT-01

which must be resolved prior to crossing the sensitive areas of Summit Ridge and the upper Mancos Valley.

"This route, as modified, strongly favors the objectives of the National Forest Service, area landowners, and the pipeline company." Based upon the data as presented in Appendix B, Table B-4 and Table B-8, it is unequivocally clear that this route has less impact on the National Forest (in terms of miles of right-of-way, timber resources, visual impact, and it follows an existing utility corridor), on private landowners (the route would cross three private parcels), on the pipeline company (this route is from 10 to 7 miles shorter than the other proposed routes, soil and slope conditions are favorable, highway crossings are fewer, and access is existing along the existing utility corridor.) "This route also offers a major long-term advantage, as it has the capacity to accommodate many pipelines without producing a public outcry over each new project."

RT-04

UT-03

We feel so strongly that this route, as modified, represents the most viable alternative that we intend to promote its acceptance through any and all means available to us. However, our preference is that the final Environmental Impact Statement will support this "Win-Win" routing solution.

Our second priority would be, we feel like the San Juan Valley Variation appears to have the potential to be a viable routing alternative. However, the DEIS does not provide a complete analysis of this alternative and its possible options. We ask that the final EIS address the options possible by TransColorado interconnecting with the San Juan Triangle or the El Paso "Y" System near Shiprock, New Mexico, and then to assess the potential political issues which may impact this route.

RT-09

RT-15

RT-41

Or the third priority in terms of Montezuma County alternates, would be the Agency preferred route, but which has been closed by the County Commission in response to public demand. Therefore, we don't feel like it's a viable route.

In selecting this Agency preferred route--I'd like to point this out, though--the agencies seem to have shown some kind of bias in that. I and the people I represent fail to understand how you could vary 10 miles and dogleg this thing down to go through private land, when the issues--I mean the facts, in terms of impact, as addressed in the draft EIS, all conclude that the other alternative is more viable.

RT-04

The last priority, No. 4, as we said, would be Alternate Route J. And we feel like this is

totally unacceptable. And we just feel like it's in our best interests, as a community in the Summit Lake area, to fight this alternate with all of our resources available.

So in closing, I wish to reemphasize, in a positive note, our support for the Mancos Valley East Variation. And I would encourage you to concur with that conclusion, as it offers the only solution where all parties to this issue can receive equitable consideration.

Thank you.

STATE OF COLORADO
Roy Romer, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
AN EQUAL OPPORTUNITY EMPLOYER
Perry D. Olson, Director
6060 Broadway
Denver, Colorado 80216
Telephone: (303) 297-1192

Index No. 64

REFER TO

For Wildlife– For People

2300 S. Townsend Avenue
Montrose, CO 81401
October 9, 1991

Chuck Finch
Project Manager
Bureau of Land Management
2465 S. Townsend Avenue
Montrose, CO 81401

RE: Comments - Draft EIS Transcolorado Gas Transmissions Project

Dear Mr. Finch,

The Division of Wildlife compliments both the consultant and Bureau of Land Management for producing a readable, clear, and complete document for our review. This is one of the better efforts we have seen.

RT-03 From the standpoint of minimizing adverse affects to wildlife, particularly winter ranges and associated conditions, we prefer the Agency Preferred Alternative (APA). 1) We express support for the APA in the Mancos area mainly because it would limit impacts to an area that already contains numerous utilities and does not create a new corridor on public lands. The Lone Cone State Wildlife Area (SWA) would be affected by the APA where by the Dry Creek Basin SWA would be affected by the proposed action. The Lone Cone SWA has minimal support as a big game winter range, but can be productive during mild winters, mainly for elk. Also, the area is very scenic and is a popular big game hunting area. The Division will be very restrictive concerning construction activities, vegetative conditions during and following construction, and terms for entry upon the area. As a state agency, the red tape process will take some time for various approvals and mitigative measures. This pertains to the other SWA's as well.

PR-06 The Division prefers to see revegetation completed with native species throughout the project area; however, we are not recommending complete adherence. If plant species can be used which benefit wildlife in general and do not pose problems to other agencies and they are not native, we will not oppose the use thereof. Plant species such as yellow sweet clover and dry land

PR-08 alfalfas may not be native, but we recommend the use of these species on many projects because of the benefits provided to wildlife.

DEPARTMENT OF NATURAL RESOURCES: Kenneth Salazar, Executive Director
WILDLIFE COMMISSION: William R. Hegberg, Member • Eldon W. Cooper, Chairman • Felix Chavez, Member • Rebecca L. Frank, Member
Louis F. Swift, Member • George VanDenBerg, Member • Larry M. Wright, Member • Thomas M. Eve, Member

PR-02 Because of recent laws passed by the state concerning weed control it should be mentioned that noxious weed control will become mandatory in the near future. The gas company will be required to do control work on the right-of-way if county committees require it. The Division of Wildlife will also require this on state wildlife areas.

PR-17 The potential for elimination of impacts to repairing vegetation and streams is not addressed. This was not placed in our earlier comments; however it should be considered. We realize this would be expensive compared to trenching but it is feasible. The draft mentions boring under lined ditches on page 35.

PR-11 Maintenance and emergency repairs were mentioned and could possibly occur during critical periods for wildlife. When this does occur we would anticipate that mitigating measures be implemented on a case-by-case basis to ensure there are no adverse affects to wildlife and that habitat is properly managed.

AU-15 Page 16 - Table 1-3 states that DOW grants a permit for crossing state lands. This should be changed to reflect only those state lands DOW contracts.

PR-12 Page 18 - The proposed route in the Ryman Creek area crosses important winter ranges for big game. Adverse effects may occur through increased access and vegetative changes. Should this project require changes in the San Juan National Forest Plan, we recommend that specific mitigative projects be completed in that area for habitat improvement.

PR-17 Page 25, Column 1 - Boring under streams would eliminate the impacts discussed.

Page 37 - If stream crossings were bored, more flexibility would be available in timing of work.

FI-03 Page 50, Table 2-7, #23. Terminology within the report should be standardized between "important" and "significant" fisheries. What is the difference and does this really have a bearing on the meaning?

PR-20 Page 51, #17. If ROW can be realized around ponds we recommend the same consideration for wetland areas.

Page 62, Column 1 - Second paragraph. this statement is unclear.

FI-02 Page 94 - Fisheries - This statement is contradicted on page 164 "Impacts to Fisheries". What mitigation is planned for this impact and subsequent loss? We believe sedimentation to have an affect for a considerable distance below the disturbed site.

GE-07 Page 112, Table 3-3 - Leafy Spurge is present in LaPlata County.

TE-02 Page 116 - River otters are found in the Dolores River drainage and have been observed in the vicinity of the pipeline crossing. They are not considered to be common there. The southwestern Willow

TE-04 Flycatcher is likely to acnier in other suitable habitats along the pipeline. Additional surveys and taxonomic work is needed to determine its status.

WL-01 Page 163, Column s, paragraph 3. It is unclear what is meant by "species composition would be .... somewhat less.."?

WL-02 Column 2 paragraph 2. It is unknown if adequate habitat exists adjacent to the ROW for displaced animals. Other factors, such as behavioral regulation of population density, would affect the availability of habitat. Furthermore, there may be changes in habitats as a result of the edge created by the pipeline corridor which extend into undisturbed areas.

WL-03 Page 164, Column 1, paragraph 1. The results of the study cited (Sedwick and Ryder 1987) are used out of context. The impacts of the pipeline corridor may be minor, but impact to small mammals will occur. For example, Sedgwick and Ryder found no pinyon mice (Peromyscus truei) in chained areas, while they occurred in adjacent controls. A 75-foot wide early successional corridor may cause habitat fragmentation for some species, especially smaller, less mobile ones. It may also facilitate movement of nest predators (raccoons, skunks) and nest parasites (brown-headed cowbird).

APPENDICES

TE-03 Page E-1 - I don't know what is meant by "recent", but the last dead lynx was taken in 1974, and we know we have them at Vail and East Fork. It is prudent to assume that lynx occur throughout suitable habitat in the state.

TE-08 Page E-2 - It should be noted that Region 2 of the FS has not yet adopted a Sensitive Species list. Any of the species shown as Sensitive in this table, such as the Mexican Spotted Owl, are only designated for Region 3, the New Mexico portion of the route.

TE-07 Page E-3 - The greater sandhill crane is considered only during the breeding season (April 1 to October 31) in Routt, Moffat, Grand, and Jackson counties. Any birds along the pipeline route would not fit into the geographical limits.

TE-05 Page E-4 - Utah Mile Snake - this species was considered a species of concern in a 1985 listing, but its unofficial designation has changed to a species of unknown status.

Please contact me at the DOW SW Regional office if you have any questions. Again, your report has clearly discussed most problems we feel might occur. Accomplishing this project to the satisfaction of all will be a miracle!

Sincerely,

Karen Prescott for Bob Clark

Bob Clark
Habitat Resources Section

BC/db

Index No. 68

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VA 22092

In Reply Refer To:
WGS-Mail Stop 423
DES 91

OCT 21 1991

Memorandum

To: Project Manager, Bureau of Land Management, Montrose, Colorado

From: Assistant Director for Engineering Geology

Subject: Review of Draft Environmental Impact Statement for the Trans Colorado Gas Transmission Project, Colorado/New Mexico

We have reviewed the subject document as requested in your letter. Our comments are as follows:

RE-06 No justification is given for grading of the entire ROW which tends to maximize problems of erosion and reclamation. In arid shrubland communities, there is a wide range of sensitivity to grading, with some species requiring centuries for recovery. Impacts can be greatly reduced by pruning rather than grading, and by temporary transplantation of younger individuals of species that cannot be pruned to ground level.

PR-26 The acreage to be disturbed appears to be inconsistent. Values showing in tables 2-1 and 2-11, for areas to be disturbed are calculated on the basis of a 75'-wide ROW. On page 33 it is stated that "Construction in some areas, such as river or stream crossings, highway crossings, and steep slopes may require ROW in excess of the 75 feet." Tabulations in Tables 2-4 and 2-14 indicate that areas with slope problems that may require, wider ROWs make up 41% of the proposed route and 37% of the Agency preferred alternative. A more accurate estimate of anticipated disturbance should be presented.

RE-07 Expectations for success in restabilization (1-5 year) seem to be overstated. On page 108 it is stated that "Soil stabilization and revegetation after disturbance may be difficult along several portions of the . . . routes because of constraints caused by steep slopes, soil chemistry . . . and excessive rockiness." This appears valid but pipeline corridors could require longer periods for restabilization. In Tables 2-4 and 2-14, fully 71% of the proposed and alternative routes qualify as difficult to revegetate. While the DEIS states that revegetation success will be monitored throughout the lifetime of the project and that some areas may need repeated efforts to revegetate, no specifics are given about how the monitoring will be carried out, or how needed renewed efforts are to be guaranteed.

WA-06, AI-09 Ancillary problems related to stabilization that are not completely assessed are the period over which accelerated erosion is to be anticipated (1-5 year appears to be too short), and consequent impacts on water and air quality. Accelerated erosion even in the 1-5 year period is not discussed as a factor in either water or air quality. Stream sediment load is considered only for operations within the streams, although increased sediment yield anywhere in the catchment will find its way to the main streams. Particulates produced by wind erosion are not considered in assessing impacts on air quality.

RE-08 Since there is already a pipeline in the agency-preferred corridor and in part of the proposed corridor, substantial information should be available on the degree of impacts to be expected, the success or failure of various reclamation procedures, and time required for restabilization and recovery of natural productivity. No apparent use is made of this information.

PR-25 Page 159, under Impacts to Topography, it is stated that "Active landslide areas crossed by the pipeline would be stabilized by environmental protection measures described in Chapter 2." No discussion of this was found in Chapter 2.

James F. Devine

Copy to: District Chief, Colorado
District Chief, New Mexico

Index No. 69

RIO BLANCO COUNTY DEPARTMENT OF DEVELOPMENT

County Courthouse
Post Office Box 599
Meeker, CO 81641
(303) 878-5081

October 28, 1991

Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

RE: TransColorado Gas Transmission Project Draft Environmental Impact Statement.

Dear Mr. Finch:

RT-18 Rio Blanco County would like to comment on the TransColorado Gas Transmission Project Draft Environmental Impact Statement. This pipeline has the potential to provide significant economic benefits to Colorado as a whole and Rio Blanco County in particular. Rio Blanco County would again like to express its support of the "Proposed Route" alternative for this project.

PR-32 The Draft E.I.S. has not adequately addressed several issues which are important to Rio Blanco County. The construction of connector lines, compressor stations, and roads associated with connecting new and existing gas wells to the main pipeline would be expected to have impacts far greater than just the main pipeline itself. It would be desirable to consider the impacts of these associated activities in the review of this project. For example, the construction of the two proposed compressor stations by West-Gas and Questar in Rio Blanco County adjacent to the TransColorado Pipeline are a concern to local ranching operations along Piceance Creek. It is recommended that the siting of these associated facilities as well as the main pipeline take into consideration the needs of the local community.

WL-06 The area surrounding the proposed pipeline alignment in the vicinity of Piceance Creek supports a large deer and elk population year-round. Although mule deer severe winter range is acknowledged, elk are not. The elk population has shown a considerable increase in recent years, especially in the vicinity of Willow Creek and Hunter Creek. It would be desirable to minimize the disturbance to the heavily wooded slopes in these areas to protect this valuable habitat. Road access should also be minimized to the extent possible. The importance of wildlife to the local economy should also be acknowledged.

All of the above problems can be adequately addressed using good construction practices and minor modifications to the pipeline project. It will first be necessary, however, to acknowledge the issues. Rio Blanco County has made numerous attempts to correct information in the Draft E.I.S. by attending meetings, telephone conversations, and letters (see letter to Karen Sable dated October 31, 1990). To date, none of the issues raised have been acknowledged. It would be helpful if, in the future, the preparer of the E.I.S. work more closely with affected jurisdictions.

We appreciate the opportunity to comment on this project and again would like to emphasize the important potential economic contribution this project could provide the State.

Sincerely,

Jim Komatinsky, Director
Department of Development

cc: Richard Chamberlain

Enclosure: Letter to Karen Sable
Letter to Chuck Finch

RIO BLANCO COUNTY DEPARTMENT OF DEVELOPMENT

Rio Blanco County Courthouse
Post Office Box 599
Meeker, CO 81641
(303) 878-5081

October 31, 1990

Karen Sable
ENSR Consulting Engineering
1716 Health Parkway
Fort Collins, CO 80524

RE: TransColorado Gas Transmission Line

Dear Karen:

In response to your telephone request to our office on October 30,1990, I would like to provide you with the following information with reference to Rio Blanco County's requirements for the proposed TransColorado Gas Transmission Line. The construction of this pipeline will require a Special Use Permit from Rio Blanco County. This permit application will require a review by Rio Blanco County's Utility Corridor Committee, Planning Commission, and Board of County Commissioners. As a result, at least 60 days should be allocated for the processing and review time for this permit. Road crossings and compressor stations will also require the appropriate permits.

In our conversation you indicated that ENSR Consulting Engineering will be preparing the environmental impact statement for this project. It is suggested that the environmental impact statement address the following issues. The TransColorado pipeline itself will traverse approximately 17 miles through Rio Blanco County. However, this pipeline has the potential to significantly increase gas drilling activity in the Piceance Basin. In addition, the construction of connector lines and roads associated with connecting new and existing gas wells to the main pipeline would be expected to have impacts far greater than just the main pipeline itself. It would be desirable to consider the impacts of these associated activities in the review of this project.

The area surrounding the proposed pipeline alignment supports a large deer and elk population. The elk population has shown a considerable increase in recent years, especially in the vicinity of Willow Creek and Hunter Creek. It would be desirable to minimize the disturbance to the heavily wooded slopes in these areas to protect this valuable habitat. Road access should also be minimized to the extent possible.

Enclosed for your information are copies of the Rio Blanco County Master Plan, Master Plan for Public Ways and Public Utilities, and an application for a Special Use Permit. If you have any questions or require further assistance, please call the Department of Development at (303) 878-5081.

Sincerely,

Jim Komatinsky, Director
Department of Development

Enclosure: Rio Blanco County Master Plan
Master Plan for Public Ways and
Public Utilities
Application for Special Use Permit

xc: Richard Chamberlain

BOARD OF COUNTY COMMISSIONERS

RIO BLANCO COUNTY COURTHOUSE
POST OFFICE BOX 599
MEEKER, COLORADO 81641

September 9, 1991

Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

RE: TransColorado Gas Transmission Project

Dear Mr. Finch:

Rio Blanco County would like to express its support of the "Proposed Route" alternative of the TransColorado Gas Transmission Project. This alternative will address the needs of Montezuma and La Plata Counties and still provide for an acceptable impact to BLM and national forest lands.

This pipeline has the potential to provide significant economic benefits to Colorado as a whole and Rio Blanco County in particular. We are concerned that an indecision on the proposed route of this pipeline will cause an additional delay in the project. It would be appreciated if the BLM and National Forest Service would consider the needs of private landowners as well as the needs of our public lands so that a project of such regional significance is not lost to indecision. The "Proposed Route" alternative is a reasonable compromise which balances the needs of both private landowners and our public lands.

If your have any questions, please call the Rio Blanco County Commissioner's office at 878-5001.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
RIO BLANCO COUNTY

BY: Joe F. Collins, Chairman

David H. Smith

Donald L. Davis

cc: Montezuma County Commissioners
La Plata County Commissioners
Richard Chamberlain
Bob Moore (Bureau of Land Management)
William Sexton (National Forest Service)
Gary E. Cargill (National Forest Service)

Index No. 70

BOARD OF COUNTY COMMISSIONERS
DOLORES COUNTY
P.O. Box 608
DOVE CREEK, COLORADO 81324

PHONE 303-677-2383

November 4, 1991

Chuck Finch
Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

Dear Mr. Finch,

EC-26 The tax base in Dolores County would greatly benefit by the compressor station proposed by TransColorado Pipeline Company if Alternate E was the chosen route through Montezuma County, as well as the proposed route through San Miguel and Dolores County. All things considered we feel this route best serves the interest of land owners as well as the sensitive environment issues.

If Alternate E is selected and the compressor station is to be located in Dolores County, the Cottonwood Road will be maintained for year around access.

Sincerely,
Board of County Commissioners

Louis Bucher, Chairman

William Moffat

Renay Neely

cc - Rich Chamberlain
Ben Nighthorse Campbell
Margy Masson
Bill Sexton - Forest Supervisor
Montezuma County
San Miguel County

Index No. 71

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814-4794

REPLY TO ATTENTION OF

November 5, 1991

Regulatory Section

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, Colorado 81401

Dear Mr. Finch:

I am responding to the Draft Environmental Impact Statement (EIS) prepared by your office concerning the TransColorado Gas Transmission Company's (TransColorado) proposed natural gas pipeline from Rio Blanco County, Colorado to Blanco, New Mexico. This office will process any Section 404 of the Clean Water Act permits for the portions of the project in Colorado and the Albuquerque District of the Corps of Engineers will process 404 permits for the portions of the project in the state of New Mexico (Albuquerque District, Attention: SWACO-OR, Post Office Box 1580, Albuquerque, New Mexico 87103-1580).

We have reviewed the Draft EIS and offer the following comments:

AU-09 1) The construction of the pipeline including excavation, sidecasting of the excavated material, and installation of the pipe may be authorized by Nationwide General Permit 12 provided TransColorado adheres to the terms and conditions of the nationwide permit (copy enclosed).

AU-10 2) The right-of-way (ROW) will be cleared and graded to a width of 50 to 75 feet. In wetland crossings, the EIS states that clearing and grading will be kept to a minimum and that balloon tire construction equipment (or proper equipment pads) will be utilized to minimize disturbance. If mechanized land clearing or the deposition of dredged or fill material is necessary during ROW construction, an Individual Department of the Army permit or approval under nationwide general permit 26 will be required. Nationwide permit number 12 authorizes wetland disturbance in the width of the trench only, including the sidecast material.

PR-30 3) For major stream crossings, the open-cut method will be used utilizing tracked backhoes. For crossings of cold water streams with trout populations, sedimentation must be controlled and flume pipes should be employed for as many cold water streams as possible. If the use of flume pipes involves the placement of dredged or fill material into the stream, an Individual Department of the Army permit may be required.

WA-07 4) The EIS states that toxic sediments from past mining practices may be released in the San Miguel and Dolores Rivers during excavation. Nationwide permit No. 12 could not be utilized for those crossings if toxic pollutants in toxic amounts are released as this would violate a condition (33 CFR 330.5 (b) (5)) of the nationwide permit.

AU-07 4) The construction of rock waterways in streams with high seasonal flows will require either Individual permit, nationwide permit, or regional general permit authorization. The nationwide and regional general permits for bank stabilization allow only one cubic yard and two cubic yards of material, respectively, per running foot below the ordinary high water mark.

AU-08 5) The City of Grand Junction and the Town of Palisade have expressed concerns over the proposed route through their respective watersheds. The proposed route will be in the proximity of a water supply intake for the Town of Palisade. Nationwide permit special condition Number 1 ((33 CFR 330.5 (b) (1)) prohibits the discharge of dredged or fill material in the proximity of a public water supply intake. TransColorado must address the concerns of the two municipalities before construction of the pipeline through these watersheds can be authorized by Nationwide permit number 12.

PR-29 6) The Draft EIS states that culverts or portable bridges may be used in stream crossings to move heavy equipment. The culverted crossings would require a Department of the Army permit, but could be authorized by Nationwide Permit Number 14 or Regional General Permit Number GP-004. We should be informed of the location of each crossing and the cubic yards of material which will be placed below the ordinary high water mark.

PR-31 7) The Draft EIS indicates that agencies will receive site specific construction plans for major river crossings. The plans which we receive should include a delineation of the Federal wetland boundary associated with each crossing. Some of the wetland crossings involve extensive wetland crossings (Gunnison River Riparian - 2000 feet) and we need to evaluate whether or not wetlands have been avoided to the maximum extent practical. Site inspections will also be made to make this determination.

8) We also recommend the Agency Preferred Route since this route has less wetland impacts than the Transcolorado Proposed Route according to Tables 2-17 and 2-18 in the Draft EIS. The Summary Impact Comparisons (Table 2-19) differs from Table 2-17 and 2-18 indicating similar wetland impacts for both routes (1 acre less shrub wetland impact on the Agency Preferred).

CU-01 9) The Draft EIS reveals there are 61 sites within the ROW Way which are potentially eligible or eligible for listing on the National Register of Historic Places. Before this project proceeds under nationwide permit authorization, we must receive clearance from the State Historic Preservation Officer that the discharges will not adversely effect any sites eligible for listing or sites listed on the National Register of Historic Places ((33 CFR 330.5 (b) (9)).

If you have further questions regarding this project, please contact Mr. Michael Claffey of this office at (303) 243-1199.

Sincerely,

Gladys E. McNure
Chief, Western Colorado Regulatory Office
402 Rood Avenue, Room 142
Grand Junction, Colorado 81501-2563

Enclosure

Copies Furnished:
Mr. Keith Rose, U.S. Fish and Wildlife Service, 529 25 1/2 Road, Grand Junction, Colorado 81505
Dr. Gene Reetz, U.S. Environmental Protection Agency, 8WM-SP, 999 18th Street, Suite 500, Denver, Colorado 80202-2405
Mr. Robert Caskey, Colorado Division of Wildlife, 711 Independence Avenue, Grand Junction, Colorado 81501
Ms. Jean Manger, U.S. Army Corps of Engineers, Albuquerque District, Post Office Box 1580, Albuquerque, New Mexico 87103-1580
Mr. Curt Dallinger, TransColorado Gas Transmission Co., 1050 17th Street, Suite 500, Denver, Colorado 80265-0501

INFORMATION PAPER
NATIONWIDE GENERAL PERMIT NUMBER 3
REPAIR, REHABILITATION OR REPLACEMENT

A nationwide general permit is a Department of the Army permit that is issued on a nationwide basis for a specific category of activities that are substantially similar and cause minimal environmental impacts. Nationwide permits are designed to allow the work to occur with little delay or paperwork. They are issued to satisfy the requirements of both Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act, unless otherwise stated. An individual permit application is not required for an activity covered by a nationwide permit.

The Corps of Engineers has issued a nationwide permit for the repair, rehabilitation or replacement of any previously authorized, currently serviceable structure or fill or of any currently serviceable structure or fill constructed prior to the requirement for authorization provided:

1. The repair, rehabilitation or replacement does not result in a deviation from the plans of the original structure or fill.

2. The structure or fill has not been put to uses differing from uses specified for it in any permit authorizing its original condition.

Minor deviations due to changes in materials or construction techniques and which are necessary to make repair, rehabilitation or replacement are permitted. Maintenance dredging and beach restoration are not authorized by this nationwide permit.

The enclosed special conditions must be followed in order for this nationwide permit to be valid.

FOR MORE INFORMATION, WRITE TO THE GRAND JUNCTION REGULATORY OFFICE, U. S. ARMY, CORPS OF ENGINEERS, SACRAMENTO DISTRICT, 764 HORIZON DRIVE, ROOM 211, GRAND JUNCTION, COLORADO 81506-8719 OR TELEPHONE (303) 243-1199.

1 Enclosure
as stated

INFORMATION PAPER
NATIONWIDE GENERAL PERMITS
WESTERN COLORADO

A. SPECIAL CONDITIONS. The following special conditions must be followed in order for the nationwide permits to be valid:

1. That any discharge of dredged or fill material will not occur in the proximity of a public water supply intake.

2. That any discharge of dredged or fill material will not occur in areas of concentrated shellfish production unless the discharge is directly related to a shellfish harvesting activity.

3. That the activity will not jeopardize a threatened or endangered species as identified under the Endangered Species Act, or destroy or adversely modify the critical habitat of such species.

4. That the activity shall not significantly disrupt the movement of those species of aquatic life indigenous to the waterbody (unless the primary purpose of the fill is to impound water).

5. That any discharge of dredged or fill material shall consist of suitable material free of toxic pollutants in toxic amounts.

6. That any structure or fill authorized shall be properly maintained.

7. That the activity will not occur in a component of the National Wild and Scenic River System; nor in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status.

8. That the activity shall not cause an unacceptable interference with navigation.

9. That, if the activity may adversely affect historic properties which the National Park Service has listed on, or determined eligible for listing on, the National Register of Historic Places, the permittee will notify the district engineer. If the district engineer determines that such historic properties may be adversely affected, he will provide the Advisory Council on Historic Preservation an opportunity to comment on the effects on such historic properties or he will consider modification, suspension, or revocation in accordance with 33 CFR 325.7. Furthermore, that, if the permittee before or during prosecution of the work authorized, encounters a historic property that has not been listed on the National Register, but which may be eligible for listing in the National Register, he shall immediately notify the district engineer.

eligible for listing in the National Register, he shall immediately notify the district engineer.

10. That the construction or operation of the activity will not impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

11. That the activity will comply with regional conditions which may have been added by the division engineer (None have been added for western Colorado).

12. That the management practices listed below shall be followed to the maximum extent practicable.

B. MANAGEMENT PRACTICES. In addition to the conditions specified above, the following management practices shall be followed, to the maximum extent practicable, in order to minimize the adverse effects of these discharges on the aquatic environment. Failure to comply with these practices may be cause for the district engineer to recommend, or the division engineer to take, discretionary authority to regulate the activity on an individual or regional basis.

1. Discharges of dredged or fill material into waters of the United States shall be avoided or minimized through the use of other practicable alternatives.

2. Discharges in spawning areas during spawning seasons shall be avoided.

3. Discharges shall not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters.)

4. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flows shall be minimized.

5. Discharges in wetlands areas shall be avoided.

6. Heavy equipment working in wetlands shall be placed on mats.

7. Discharges into breeding areas for migratory waterfowl shall be avoided.

8. All temporary fills shall be removed in their entirety.

C. FURTHER INFORMATION.

1. District engineers are authorized to determine if an activity complies with the terms and conditions of a nationwide permit unless that decision must be made by the division

other Federal, state or local authorizations required by law.

3. Nationwide permits do not grant any property rights or exclusive privileges.

4. Nationwide permits do not authorize any injury to the property or rights of others.

5. Nationwide permits do not authorize interference with any existing or proposed Federal project.

FOR MORE INFORMATION ON THE NATIONWIDE GENERAL PERMITS IN WESTERN COLORADO, WRITE TO THE GRAND JUNCTION REGULATORY OFFICE, U. S. ARMY, CORPS OF ENGINEERS, SACRAMENTO DISTRICT, 764 HORIZON DRIVE, ROOM 211, GRAND JUNCTION, COLORADO 81506-8719 OR TELEPHONE (303) 243-1199.

Index No. 72

WEMINUCHE GROUP
Sierra Club
P.O. Box 1696
Durango, CO 81301

November 7,1991

Mr. Chuck Finch,Project Mgr.
Bureau of Land Mgmt.
2465 South Townsend Ave.
Montrose, Co. 81401

Dear Mr. Finch:

AL-08 I am writing regarding the Draft Environmental Impact Statement for the TransColorado Gas Transmission Project. The Weminuche Group is opposed to the project and supports the No Action alternative.

AI-13 The proposed project with pipeline and construction of 6 compressor stations would cause serious environmental impacts not only to directly affected disturbed land but also to air quality in surrounding areas. Emissions of pollutants into air presently considered to be "good quality" would cause degradation with visible and nonvisible impacts.

AL-01 The "Air Quality Impairment in Mesa Verde Nat'l. Park"(p.vii-Summary) is listed as an "unresolved issue." Potential cumulative air quality impacts are listed as "unknown at this time." Page 158 states that the Dolores Alternate 1 site would be used for a compressor if the Alternate 2 site did not meet Nat'l. Park Service and State of Colorado visibility requirements.

Moving the compressor station may move the pollution and decrease "plume visibility" at the Park but does not correct the primary problem:air pollution caused by the compressor. It simply relocates it.

AI-08 The DEIS justifies building the pipeline to meet the "increased demand for natural gas" in the Midwest and California in their efforts to"clean up the air."(p.3) Yet, the proposed project will cause permanent degradation of air quality in one of the few remaining "clean air" regions in the U.S.

The routing of the pipeline is also of concern. The "agency preferred" route would cross/impact lands owned by private individuals who chose to live in the area because of its natural values (clean air, water, visuals). It would negate the very reasons people live in the area, impacting air, soil, vegetation, water and wildlife. It would cause "noise" impact, an often unrecognized but serious problem.

GE-10 Rerouting the pipeline through National Forest would cause the same above mentioned impacts to land that is supposedly protected for present and future generations. It would cross/impact areas of Old Growth forest, of which only a very small percentage remains in Colorado or the U.S.

GE-11 It is time that government agencies responded to the needs of sparsely populated areas such as Southwestern Colorado instead of acting according to the demands of big business, whose main interest is moneymaking, and large metropolitan areas who demand every convenience and a neverending supply of energy.

Sincerely,

Patricia L. Schuler
Conservation Chair

Index No. 77

24480 Highway 145
Dolores, CO 81323
November 15, 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

RE: Draft Environmental Impact Statement
Transcolorado Gas Transmission Project
Colorado/New Mexico

Dear Mr. Finch,

Attached you will find a 17 page document which provides comments on the Draft Environmental Impact Statement for the Transcolorado Gas Transmission Project by 26 land owners (15 separate tracts of property), whose property is located on or near the Mancos Valley East Variation (Alternate "E") of this Project. As discussed in our recent meeting, it is our understanding that this document will be incorporated with other public comments taken at Public Meetings held on this Project and that our comments will have the same weight as those taken at the Public Meetings. Also, you will note that we have all signed one document, since you advised in our meeting that this procedure would have the same weight as sending you separate documents by each land owner.

Please provide each signer of the attached document with:

1. The final Environmental Impact Statement on this Project.
2. The final Letter of Decision. (It would be helpful if you could also provide the procedure to be used for appeal of this Letter of Decision to the Appeals Board)

You will find each land owner's address listed under their signatures.

If you cannot provide the above for any reason, please so advise each signer, and advise how they can obtain this data.

Yours very truly,

Cecil C. James

CCJ
cc: Each Signer

(Sent Certified Mail-Return Receipt Requested)

Comments-Draft EIS
Transcolorado Pipeline

24480 Highway 145
Dolores, CO 81323
November 1, 1991

Mr. Chuck Finch, Project Manager
Bureau Of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

RE: Draft Environmental Impact Statement
Transcolorado Gas Transmission Project
Colorado/New Mexico

Dear Mr. Finch,

RT-01 The purpose of this letter is to specifically object to the use of the Mancos Valley East Variation (Alternate "E") for referenced Project by the undersigned property owners and to outline the reasons for our objection. However, we found in our study of the referenced Draft Environmental Impact Statement, that we also wish to speak to broader issues concerning this Project, which are also contained herein.

A. TRANSCOLORADO GAS TRANSMISSION PROJECT - BROADER ISSUES

WE QUESTION THE WHOLE CONCEPT OF INSTALLING THE TRANSCOLORADO PIPELINE

PUR-02 PUR-04 PUR-05 Our understanding of the need for the Transcolorado Pipeline centers around getting natural gas being produced in the Rocky Mountain Region to markets in Southern California and the Midwest. Specifically 301.7 MMcfd, which will be supplied by Questar, WestGas, and Rocky Mountain.

We noted on Figure 1-2 of the Draft Environmental Impact Statement, that the above listed suppliers already have pipeline interconnects with Northwest Pipeline Corporation.

In discussions with Northwest Pipeline Corporation Management People, we have ascertained that these suppliers do in fact already have interconnects with Northwest and we have been advised that Northwest can accept these suppliers' gas as it becomes available to them and can deliver this gas to the Markets outlined above. In fact, we have been advised that they can provide this transportation service to an additional market area in the Northwest USA, and all of this, for less cost to the end users!!

We have been advised that with their requested expansion permit, that they can accept the total 301.7MMcfd in a

timely fashion as it becomes available. If this is true, then the suppliers will be able to market their gas as it becomes available.

We understand that Northwest will charge approximately $.23 Mcf now and $.27 Mcf after their expansion for this transportation service. It is estimated that the Transcolorado charge for this same service would be approximately $.95 Mcf!! If these numbers are correct, then the implications to the end users is shocking!!

PUR-02 We also question if Transcolorado already has the necessary contracts with the natural gas producers and the end users in hand. It would seem that this is critical to any decision to proceed with this project.

We understand the concept of "competition" in the market place, but we do not agree that the competition principle should override good judgment as it relates to rates charged end users and environmental impact!

We also understand the concept of "monopoly". We note that Transcolorado Pipeline Co. is a joint venture of two of the major suppliers of natural gas to itself, i.e. Questar and WestGas.

In summary, we feel that, based upon the information outlined above, that the whole concept of the Transcolorado Pipeline Project is questionable. We think that a more in-depth review of this project is in order and we request that this review be made in the interest of the American Public, especially the end users of the natural gas; the 250MM+ owners of the National Forests, Scenic Byways, and BLM Lands; and the private property owners affected by the pipeline installation.

AL-07 WE DO NOT FEEL THAT THE "NO ACTION ALTERNATIVE" HAS BEEN GIVEN A PROPER AND FAIR EVALUATION IN THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

We feel that the "No Action Alternative" was given only a cursory review; that the methods used in the study were very *simplistic* in concept; that the study was slanted and biased against the No Action Alternative because facts and information was slanted, not complete, or suppressed; and that incorrect conclusions were reached.

Cursory Review
Using the same *simplistic* approach used in the study - how could such an important approach as "No Action" (Minimal Environmental Impact) garner only two (2) pages in a three hundred twenty page (320) page document??? We feel that this would indicate

cycle. It appears that this system upgrade will go forward. If it does, it would appear that any upgrading to accommodate the natural gas to be transported by Transcolorado (301.7 MMcfd) could be incorporated into this upgrade with minimal additional environmental impact. However, it

AL-10 appears that Northwest's upgrade will go forward, with or without the natural gas to be transported by the proposed Transcolorado Project. In other words, if Northwest's upgrade goes forward, true environmental impact in relation to the Transcolorado project is nil!! We think that the above information should have been considered in reaching the conclusion in the "Pipeline System Alternative", since the elimination of this vital information is critical to the conclusion reached!! We think that it would swing the conclusion in favor of the use of the existing Northwest Pipeline system to transport this gas!!!

INCORRECT CONCLUSIONS

AL-11 Based upon the information covered above we question the conclusions reached in the "No Action Alternative". We find the conclusion reached in

AL-05 the "Pipeline System Alternative" particularly ludicrous, i.e. "and the fact that it does not offer any significant environmental advantage". We will never be convinced that installing a completely new pipeline thru some of the most "pristine" National Forest Service, BLM, and private property in the U.S.A. versus using existing ROW and upgrading existing pipelines and other equipment (compressor stations, metering stations, block valves, and the like) would be more environmentally advantageous or that it would be a push environmentally!!!

B. MANCOS VALLEY EAST VARIATION (ALTERNATE "E")

RT-28 THE DRAFT ENVIRONMENTAL IMPACT STATEMENT DOES NOT PROVIDE AN IN-DEPTH STUDY OF THE MANCOS VALLEY EAST VARIATION (ALTERNATE "E")

In our review of the Draft Environmental Impact Statement we find that the Mancos Valley East Variation (Alternate "E") is only outlined in Tables B-3 and B-4 of Appendix B and is shown on Figures 3-1 thru Figures 3-10 of Chapter 3 and Figures 4-1 of Chapter 4. However, no in-depth information is provided to inform the public as to the true environmental impact of the proposed action. Only raw data is supplied, with no attempt to refine or weight the data in order for us to get a better handle on the true impact on the more sensitive environmental issues involved. Especially between the

that only a cursory review was given this alternative and that no in-depth study was made.

Simplistic Concept

AL-05 In the "Pipeline System Alternatives" the Northwest Pipeline Alternative was "eliminated from further consideration" by adding up the total mileage of pipeline and the total compressor horsepower, without providing any details of environmental impact or without looking at any of the critical environmental issues in the same detail as the other alternatives. For such an important alternative decision and for reaching such an important conclusion we cannot believe that such a simplistic approach was used. We request that a more in-depth study be made on this alternative.

Slanted, Biased, or Suppressed Information

SC-04 In the "Pipeline System Alternative" a great deal of information is provided on how the natural gas would flow from the suppliers to the Northwest Pipeline (miles of various sizes of pipe and horsepower of compression), however we can find no information on how the suppliers and producers would get the natural gas to the Transcolorado Pipeline. It would seem that this information would need to be developed in order to make an unslanted, unbiased, comparison of the alternatives.

AL-05 In the "Pipeline System Alternative" the "503 miles of pipeline compared to 305 miles proposed by Transcolorado" does not present the whole picture. How can you simply compare total miles of "pipeline" when the 503 miles contains 8",10" and 14" pipe in mostly existing ROW and the 305 miles contains 22-24" pipe in all new ROW? Also, the pipeline and compression needs in the "503 miles" case would be placed in existing ROW and facilities in a "production area" versus placing them in new ROW's primarily in "pristine" National Forests. The difference in "character" of these two cases is obvious, but your study does not take this fact into account!! It appears apples and oranges are being compared to slant the conclusion reached.

In the "Pipeline System Alternative" the 503 miles of pipeline contains "303 miles of 30" pipeline looping" and "48.3 miles of 20" pipeline looping". This "looping" takes place in existing ROW. We understand that Northwest's application with FERC (Docket No. CP91-780-000) has been approved and that they are presently going through the EIS

various alternatives presented. For example, of the many impacts shown, i.e. Paleontological Formations, Oil and Gas Fields, Landslide Areas, Rangelands, Key Elk

GE-18 Range, etc. etc. which are truly the most sensitive to the environment? Does each item shown carry the same weight as to its impact to the environment? As presented, we cannot, and we question if any lay person can, make an informed decision between the alternatives. We request that a more in-depth study be made of the Mancos Valley East Variation (Alternate "E") and that the facts presented on all alternatives be presented in such a way that a true assessment of environmental impact can be made, i.e. the more sensitive areas weighted accordingly.

WL-11 WE QUESTION SOME OF THE DATA FOUND IN TABLES B-3 AND B-4 OF APPENDIX B OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Mancos Valley East Variation shows 0 impact for Key Deer Range and Key Elk Range. Figure 3-6 shows Key Elk Range in Cox Canyon, which is located on the Mancos Valley East Variation! We question this entire area in

WL-11 the Draft Environmental Impact Statement. We strongly believe that the Haycamp Mesa area also provides Key Deer and Elk Range. We request that a more in-depth study be provided and that any new data be considered in making the route decision.

EC-33 "OWNERSHIP-PRIVATE" IN TABLE B-3 OF APPENDIX B OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT DOES NOT PRESENT A TRUE PICTURE OF THIS ISSUE IN THE STATEMENT

The methodology used of only presenting "raw data" in the various tables and figures in the Draft Environmental Impact Statement does not fairly represent the facts. For example, if the Mancos Valley East Variation is used, the pipeline will pass thru private property owned by the Four Corners Youth Encampment.

EC-41 Only one (1) owner -BUT.....this property is used by hundreds of youth and adults annually and is owned by many people throughout the Four Corners area. We would venture to say that a pipeline going through this one piece of property would have more impact on people than all the other variations in Montezuma County combined!!

EC-34 NO ATTEMPT HAS BEEN MADE IN THE DRAFT ENVIRONMENTAL IMPACT STATEMENT TO LOOK AT THE *CHARACTER* OF THE PRIVATE PROPERTY INVOLVED IN THE VARIOUS ALTERNATIVES

In looking at alternatives, we believe it is incumbent on decision makers, that they not only look at the obvious impacts, i.e. physical scarring of the land and vegetation, sound, sight, game range, endangered species, and the like, but that they should also consider the *character* of the private land being affected by the pipeline installation. The Mancos

Valley East Variation will affect property in an area that has very little development. It is more "pristine" than any of the other variations being considered. The basic concept of the development now in place is single residence for summer and/or retirement and a church camp that has been in place for over 30 years ministering to thousands of youth - using nature, peer companionship, and bible study to minister to their spiritual needs and development. We suggest that the *character* of the private property involved (that property crossed and near or adjacent to the proposed pipeline) should be heavily weighted in the decision process. (It is obvious that this same weighting should be applied to the National Forest land being crossed)

PU-01 THERE HAS BEEN NO ASSESSMENT MADE IN THE DRAFT ENVIRONMENTAL IMPACT STATEMENT OF THE EFFECTS ON THE HEALTH AND SAFETY OF PEOPLE DUE TO THE INSTALLATION OF THE TRANSCOLORADO PIPELINE

Even though this subject would have a broader application than the Mancos Valley East Variation, it is placed here because if the Mancos Valley East Variation is used, we feel that it would present a higher risk to more people than the other variations.

When the Four Corners Youth Encampment is active, there will be over 100 young people and adults using this facility at one time. This presents a high concentration of people very close to the pipeline. Open campfires are used as a regular part of the camp program.

We question why this subject has not been addressed in the Draft Environmental Impact Statement. What are the risks to health and safety? What happens 10 - 15 - 20 years from now as the pipe wears due to friction and abrasion (especially at welds, elbows, flanges, and other fittings) and deteriorates due to rust? What assurance do we have that there will be no accidental damage to the pipeline? Is there a potential for leaks to develop? If so - where? Is the gas odorless? What are the effects of pipeline settling - especially under the Dolores river? These, and many more questions relating to health and safety should be assessed in your routing decisions.

GE-23 THE DRAFT ENVIRONMENTAL IMPACT STATEMENT DOES NOT ASSESS THE IMPACT OF PULSATION AND VIBRATION DUE TO THE INSTALLATION OF THE PIPELINE, COMPRESSOR STATIONS, AND OTHER EQUIPMENT

This issue probably fits better as an overall pipeline issue, but we are concerned that if the Mancos Valley East Variation is used, that the installation of Dolores Compressor Station Alternate Site 1 will impact

the most beautiful scenic valleys in the World!! Truly a National Treasure!! How can you even consider spoiling this beauty with a pipeline??!! Would you consider installing a pipeline in or through National Treasures such as Yellowstone, Mount Rushmore, Yosemite, or Mesa Verde?? We have said this before-and we say it again-if you are considering Environmental Impact-you MUST consider *character* of the area involved-and you MUST use a "weighting" methodology in your process!!

Yours very truly,

(See Attached Signature Sheets)

our area with pulsation and vibration. We are also concerned about the pipeline itself. We are surprised that this issue was not addressed in the Draft Environmental Impact Statement. We think that there will definitely be an impact due to pulsation and vibration on our homes and way of life if the Mancos Valley East Variation is used and we question the impact upon wildlife in our area.

EC-35 IF THE MANCOS VALLEY EAST VARIATION ALTERNATIVE IS USED, WE FEEL THAT THE ECONOMIC IMPACT TO PRIVATE PROPERTY OWNERS IN THE DOLORES VALLEY WILL BE GREATER THAN THOSE PRIVATE PROPERTY OWNERS ON THE OTHER ALTERNATES

Private property owners in the Butler Sub-division (those owners closest to the Pipeline), in our opinion, will suffer a greater economic loss due to the pipeline installation, since they all have smaller land plots and the whole character of the sub-division is geared to nature and the lack of commercial development. It is comprised primarily of single residences nestled in timber along the Dolores River. Property owners have developed their property, or plan to develop their property as summer residences or retirement residences. Due to this type of development, the pipeline installation will, in our opinion, lower the market value of our property more than property located on the other variations.

One larger property owner, whose property is not a part of the Butler Sub-Division, will definitely have the pipeline run through her property. The greatest potential for future development of this property is for recreation or sub-division along the same lines as the Butler Sub-Division. In our opinion, the installation of the pipeline on her property will essentially "kill" this potential.

We feel that these facts should be considered in making a final routing decision.

VS-15 IF THE MANCOS VALLEY EAST VARIATION IS USED, IT WILL CROSS *SCENIC BYWAY* HIGHWAY 145 AT APPROXIMATELY MILE MARKER 22
VS-02

At mile marker 22, Scenic Byway Highway 145 has moved from various developed areas out of the Town of Dolores and the terrain is definitely beginning to take on the character of the scenic natural forest, with the timber moving from predominantly scrub-oak and cedar on low cliffs and cottonwood in the river valley to larger conifer and aspen on the higher cliff sides. Cottonwood continues to grow in the valley along the river. The cliffs now rise 1000 Ft. above the valley floor. Large rock outcroppings can also be seen from the highway along the cliff sides. It is the beginning of one of

Mrs. Cordy Englehart
Four Corners Youth Encampment
Mr. Gary Groves
Mrs. Gary Groves
Mr. Ted Hardy
Mrs. Ted Hardy
Mr. Harold Ibscher
Mrs. Harold Ibscher
Mr. Cecil C. James
Mrs. Cecil C. James
Mr. L. V. McKee
Mrs. L. V. Mckee
Mr. John Patton
Mrs. John Patton
Mrs. Grace Randol
Lindy Ricedorff
Rich Williford
Mrs. Lyle Urich
Mr. Fred E. Austin
Mrs. Fred E. Austin
Ramon Brown
Mrs. Ramon Brown
Mr. Leonard Heard
Mrs. Leonard Heard
Neal Knox
Jay Knox
Don Mobley
Mr. B. J. Porter
Mrs. B. J. Porter
Mr. Val Truelsen
Mr. Steve Arrowsmith

Index No. 78

P. O. Box 1149
Aztec, NM 87410
November 16, 1991

Chuck Finch, Project Manager,
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

Re: Comments of Jack W. Scott on the AUGUST 1991 Draft EIS, TRANS COLORADO GAS TRANSMISSION PROJECT, Colorado/New Mexico

Dear Mr. Finch:

It is a real pleasure to see that BLM as lead agency for this EIS is finally beginning to recognize its obligation and duty to cover private lands and properties and peoples and the impacts to same in a pipeline EIS. This has been a long time in coming. For a first attempt for BLM, to my knowledge, to include the private concerns, BLM is heading in the right direction; I feel sure that BLM will see that the FINAL EIS will be even more complete and even more improved especially since this is a growing and learning process of moving into unfamiliar territory. Private concerns and lands have to be addressed at least as equally and as comprehensively as agency concerns and lands.

It is nice to see that BLM is open to utilizing FERC expertise in the private concerns area. FERC influence on this draft is quite evident and greatly appreciated. Since there is not a wealth of information available for private sites along the various routes, the private locations are not as comprehensively or as completely covered as are public or federal locations in the draft. Further on site studies should be completed to check the accuracy and accountability for information attributed to private lands.

EN-10

The drafter of the General Protection Measures should be commended for the coverage and concern for private sites; and in the final EIS, these should be expanded and in some cases wording clarified so that the intent and meaning is clearer regarding private concerns.

EN-01

General protection measures are well and good but if private owners are not aware of or informed of the measures, they are of little benefit. In order for all private owners to know of these protections available to them for their properties and persons, TransColorado should be required to supply copies of these private protection measures and any FERC Certificate requirements to all owners of private lands impacted by their proposed line and the final route chosen.

EN-11

This would allow the private entities to know and understand exactly what protections are available to them. It would relieve them of having to place themselves in the disadvantaged and unfamiliar positions of having to barter and be subjected to the whims and God like manner (at least in the past because of condemnation powers) of some arrogant and highly trained right-of-way person. This archaic process euphemistically called negotiation has previously been similar to being an American unable to speak the language and not familiar with the money, negotiating for food in an open air produce market situation of a third world country where Americans are not especially liked.

In chapter 2 Table 2-7, page 54 under prime and unique farm lands is "5. **All rehabilitation will be completed according to landowner or SCS guidelines, provided these stipulations are included in the landowner easement agreement.**" I take issue with the attitude taken here. The DRAFT EIS has refused in Chapter 1 page 26 to address the Easement Acquisition Process. Pipeline companies have systematically and notoriously entered into condemnation in the past to circumvent any environmental concerns on private lands and to tie the private owners hands thus preventing procedures and conditions for maintaining environmental quality of private lands. Condemnation and BLM's refusal in the past to address Easement Acquisition Processes has allowed the rape of the private lands and the private owner.

EM-01
EM-02

The finalized and expanded and improved General Protection Measures along with any FERC Certificate requirements should not be a part of the negotiation process for private lands to be whittled away by the pipeline company, they should be guaranteed the landowner if the landowner wants them.

EN-07

Condemnation places a restraining order on the property owner preventing any interference with the pipeline contractor and only allows a monetary settlement for damage after the fact and after the private owner has proven damage, environmental or otherwise, with expert witnesses and court procedure. Condemnation and eminent domain laws were written and

placed into effect when lawyers were paid less than 15 dollars an hour. Now to just get to the hearing stage at $125.00 dollars an hour and paying expert witnesses in proving damage, it generally takes from 16 to 20 THOUSAND DOLLARS; the damage was not prevented and was not within the power of the owner to prevent under present condemnation law.

Easements are many times paid for by the rod. Since most people cannot afford the court process, they many times settle for very little per rod. Recent county clerk file searches and interviews in La Plata County Colorado and San Juan County New Mexico have come up with certain discrepancies. Some pipeline companies using 1950's standard easement documents with no environmental protections prey on unsuspecting owners and steal the easements for as little as $5 dollars a rod. A company mentioned in the DRAFT EIS as going to possibly carry gas from TransColorado made the statement that they could get the right-of-way for their new 30 inch line for $15.00 a rod. They offered $100.00 a rod across irrigated farm ground or 12 cents a square foot and filed condemnation to obtain the right of way without even waiting for a refusal. This same company then changed the routing for their line and not having the FERC certificate and thus not having the timely power to condemn paid $1.25 a square foot on farm land and as high as 75 cents a square foot plus damages for flood plain and swamp land. The neighbors talked to each other; communication among neighbors is very important.

EM-02

The acquisition of private property is not outside the scope of this EIS primarily because what is offered by the company and what they have gotten away with in the past is what has explicitly prevented maintaining environmental quality and protections on private property in the past. A thorough discussion is required.

EM-02

Protection Measures should be afforded private properties just as they are BLM, Forest Service and Indian lands. Perhaps a permit or grant system should be applied to private lands dealing with environmental issues and protections with the actual right-of-way easement acquisition document or condemnation process dealing solely with the deed transfer of physical property, its monetary value, and the value of damages to the remainder of the property. If any measure is required in permits or licenses or grants on any of the three above mentioned lands, it should also be guaranteed available on private lands for private owners and not be a negotiable item to be vetoed by a pipeline company.

EN-07

Protection Measures are only as good as the inspectors enforcing them and clout is necessary to control or reprimand the pipeline company if they are

PR-13

not followed or enforced. Pipeline inspectors are generally supplied by an inspector service and they go from job to job around the country. There is a definite need for a testing program for these inspectors to ensure that they know and understand the measures for which they are to be insuring and to weed out those whose sole purpose is to circumvent the measures during construction. There should be available a process to handle complaints by private owners against actions from incompetent or abusive and harassing inspectors that are not doing their jobs.

PR-13

EN-12

It is somewhat appalling that this Draft EIS is using the old thinking and terminology as has been done in the past and refers to the AGENCY PREFERRED ROUTE and then in two instances determines that the agency preferred route is predominantly across private lands. This hints of something less than desirable, legal, or socially acceptable. Does lack of bias exist or are the agencies just trying to force the location off of their agency lands and onto private lands? The public hearing on this Draft EIS in Cortez raised environmental issues and suggested modifications and alterations to agency determined routes to better environmentally adjust the routing to a more environmentally and socially acceptable location--back onto public lands. I would say that agencies can have their preferred routes on their lands but not without addressing the problems created when their chosen route impacts private or other lands outside of the agency lands. As one Federal person stated, ""Environmentally Preferred Route' at least has a basis and can be defended on Environmental concerns at the least."

RT-01

The TransColorado line is intended to serve the public and will be declared and certificated a public necessity and convenience. The laws of Eminent Domain and Condemnation applicable to private lands allow these lands to be taken for the purpose of public good and benefit. Agency lands cannot be condemned and taken because these lands are already public lands and are intended to be used by the public for the public good. It is a travesty that Agency representatives are trying to circumvent the intent and use of the public lands and force the impacts onto the private locations. It is ironic that some agency personnel have come to see agency lands as more sacred than private lands and have allegedly decided to act as Gods and force the pipeline onto predominantly private lands in certain areas.

What is the scope of the impact to private owners of having their lands used as a corridor and what is the impact of one more line on private properties? It is apparent why the Draft EIS has avoided addressing Condemnation and takings of private lands. Private lands have to be addressed beyond the lumped together and meaningless private designation for all such ownership. The private category is made up of individuals with individual concerns and

EC-11

EN-10

issues. The true story would be shown if the issues (condemnation, environmental, and socioeconomic) of each or even representative individual private parcels were to be addressed in the EIS. They are separate parcels and just as the U.S. Forest Service comes up with Site-Specific Environmental Protection Measures for specific locations on Forest lands, there should be a thorough site specific accounting for the individual properties in the path of the pipeline.

What is the cumulative and total or complete impact of a 75 foot right-of-way and pipeline and its long term commitment to pipeline utility land uses to a twenty acre parcel? To an 80 acre parcel. To a 300 acre parcel? To a several thousand acre parcel? To the multiple thousands of acre parcel of say the Mancos District of the San Juan National Forest? How does it individually affect these parcels? The agencies have paid staffs to monitor and control actions through planning, construction, and clean up of the project. The agencies have the right to shut down the operation if their conditions of permits or certificates are not followed? What private owner has the time or money to personally deal with the endless initial intrusions of meeting after meeting or monitor the activities across his or her property. The construction can go on for months across individuals' properties as is presently being exemplified in the San Juan River Crossing by Transwestern/Enron in San Juan County, New Mexico. To ignore the Social and Economic impact to the individual private owner (upon the business, the family life, the mental and emotional well being, the lifestyle, the view, the solitude, the irrigation practices, the livelihood, etc.) by the change of all aspects of the intrusion of a pipeline cannot be ignored.

EC-30

EC-11
EC-30
EN-08
EC-31

Without further comment, this Draft EIS is totally inadequate without thorough and complete coverage of the impacts and remedies to private properties. The Final EIS should address all issues and incorporate adequate case studies backed up by enough information and interviews of people with past construction horror experiences to give a valid overview of pipeline and utility experiences on their lands.

The series of maps for use in illustrating the affected environment is an excellent mode of visually showing the affected environment and the Draft EIS is to be commended for the use of this method of information dissemination. Hopefully corrections and more complete information for private lands will be forthcoming in the Final EIS.

PR-38 The Animas River crossing needs further discussion in this EIS. The Animas is tributary to the San Juan and therefore is a part of the Squawfish recovery program. Any crossing stipulations having to be met by Transwestern, Gas Co of New Mexico, or El Paso on the San Juan should also have to be followed by TransColorado.

WA-13 On page 160 under Impacts to Municipal Watersheds and Water Supplies is a mistake. The ditch inlet to the Farmers Ditch (Farmington water supply ditch) is directly below the proposed pipeline crossing and not 8 miles downstream as stated. Also the alternate delivery point for Aztec's water supply, the Lower Animas Ditch, heads directly above (on the opposite side of the river from) the Farmers Ditch.

VS-16 The Old Growth Cottonwood Forest found in the Animas River Valley is unique to and unusual in the Four Corners region and deserves mention and protection from disturbance and destruction.

This letter has dealt primarily with the private property omissions in the Draft; it in no way is meant to draw attention away from the good points and good aspects of the other areas handled in the Draft. Coverage for the agencies lands and problems is good and shows great progression especially when compared with the early BLM EIS documents such as the Mapco Liquid Hydrocarbons document. Progress and increased expertise in the environmental arena is quite apparent in dealing with agency lands and protections for them.

Thank you.

Sincerely,
Jack W. Scott
Jack W. Scott

page 5

page 6

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF PIPELINE AND PRODUCER REGULATION

Index No. 82

OPPR/DEMEA/ECB
TransColorado Gas Transmission Company
Docket No. CP90-1777-000

NOV 20 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, Colorado 81401

Mr. Finch:

The following reflects the comments of the Federal Energy Regulatory Commission (FERC) on the August 23, 1991 Draft Environmental Impact Statement for the TransColorado Gas Transmission Project (TransColorado). As a cooperating agency in this environmental review process, the FERC staff has worked extensively with the BLM staff and TransColorado throughout the preparation of the document. The FERC staff appreciates the opportunity to cooperate in this BLM-led EIS effort.

The FERC intends to adopt the analysis contained in the Final EIS for its evaluation of the environmental issues and to use the subject EIS to satisfy its National Environmental Policy Act mandates as well. In this regard, the EIS should provide decision makers and the public with information concerning the expected environmental effects of construction, operation, and maintenance of the TransColorado project, and should include proposed or recommended mitigation measures and/or alternatives to reduce or avoid those effects. We believe that the Draft EIS meets these requirements. However, the FERC staff believes that before recommending the use of an alternative alignment, the alternative must be environmentally superior to the proposed route; that is, it must offer a clear and substantial reduction of expected environmental impacts.

The Draft EIS identifies the "Agency Preferred Alternative" to be TransColorado's proposed action except for two routing changes -- the Norwood area and the Mancos Valley area. Our review of the Draft EIS included applying the above-described test to these two recommended alignment changes. First, the comparative information presented in Table 2-17 of the Draft EIS indicates that the agency preferred alternative route in the

Norwood area does offer a clear and substantial reduction in expected environmental impacts when compared to the proposed route. Consequently, based on the information contained in the Draft EIS, the FERC staff agrees that this alignment change would be environmentally superior to the corresponding segment of the proposed route.

RT-11

Our review of similar comparative information presented in Table B-3 of the Draft EIS indicates that the "Agency Preferred Alternative" in the Mancos Valley area is not environmentally superior to the proposed route. Constructing the pipeline along the agency preferred route in the Mancos Valley area would also greatly exacerbate the project's impacts on private lands, which was the primary issue raised during the public hearings on the Draft EIS. Therefore, we do not believe that this change to the proposed route in the Mancos Valley area would be environmentally preferable to the corresponding segment of the proposed route.

RT-02

Table B-3 presents comparative information for another routing alignment in the Mancos Valley area as well -- the Mancos Valley East Variation. The information presented in the Draft EIS indicates that this variation offers a clear and substantial reduction in the expected environmental impacts when compared to the proposed route. Therefore, unless information presented in the Final EIS demonstrates otherwise or it is determined that the Mancos Valley East Variation does not offer a substantial environmental benefit when compared to the corresponding portion of the proposed route, we will recommend the Mancos Valley East Variation as the environmentally superior route.

RT-05

In addition to these general comments, we respectfully request that the attached specific changes and additions (see enclosures 1 and 2) be included in the Final EIS. If you have any questions, please contact Mr. Michael Boyle of my staff at (202) 208-1003, or FTS 268-1003.

Sincerely,

Larry Sauter for
Robert K. Arvedlund, Chief
Environmental Compliance and
Project Analysis Branch

2 Enclosures

**SPECIFIC COMMENTS OF THE
FEDERAL ENERGY REGULATORY COMMISSION
ON THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR
THE TRANSCOLORADO PROJECT**

Page iii, Cultural Resources.

- This paragraph, which reappears in whole or part on pp. v, 94, 165, 176, 180, 181, 183, 184 and in tables on pp. A-19, B-23, B-31, and B-36, should be modified in each instance as follows:

  - lines 3-4. Replace "archaeological sites" with "cultural resources". This is a more generic phrase which better reflects the existing range of property types beyond archaeological sites (e.g., standing historic structures, traditional cultural properties, etc.). Following "cultural resources" add "(historic properties)" so that this phrase can be used in the remainder of the document when referring to National Register of Historic Places (NRHP)-eligible cultural resources.

  - lines 6-9. Revise the sentence to "The required Class III surveys would identify these resources and TransColorado's Programmatic Agreement would provide guidance for treatment plans which would mitigate impacts on historic properties that could not be avoided".

Page 15, Table 1-3.

- Under "Grant, Permit, or License Required", the National Historic Preservation Act (NHPA) should be cited for Section 106 compliance with 36 CFR 800 in parentheses as the implementing regulations.

Page 18, Relationship To Indian Tribal Policies and Plans.

- para. 2, line 7. Replace "archaeological surveys" with "cultural resources surveys".

- para. 3, line 7. Replace "archaeological" with "cultural resources" (as in line 11).

Page 24.

- para. 1, line 5. Replace "archaeological and historical resources" with "cultural resources".

Page 35, SPECIAL AREAS CONSTRUCTION.

- Insert the following two sections entitled "Residential Areas" and "Agricultural Lands":

"Residential Areas"

"The construction right-of-way would not be located within 50 feet of any residences. Special construction activities for crossing residential areas would include maintaining access to and from residences at all times, constructing only between the hours of 7 a.m. and 5 p.m., implementing dust control measures, limiting the time that trenches may remain open within 250 feet of a residence, maintaining or restoring any potable water supplies, and protection of residences and occupants from any required blasting activities. Any pipeline trench left open overnight within 250 feet of a residence would be fenced. When crossing private roads, owners would be notified at least 24 hours in advance of construction and each crossing would be completed within 3 hours."

"Agricultural Lands"

"Construction in agricultural lands would be timed to avoid wet weather or critical farming operations as specified by the landowner. Other mitigation techniques would include segregating topsoil, regrading to approximate preconstruction grade, and relieving compacted soils. Rocks brought to the surface by the construction operations would be removed from the right-of-way during restoration. At the landowners request, the backfill would not be mounded over the trench to avoid interrupting water distribution. All agricultural lands would be monitored for 2 years after construction to assure that field flow characteristics have been maintained and to determine the need for additional restoration. Compensation for crop loss would be provided."

"In pasture and range situations, existing improvements such as fences, cattle guards, and watering devices would be maintained or repaired to avoid disruption of the livestock operation. Grazing deferment may be developed with landowners to minimize impacts on forage production on the right-of-way. Landowners with livestock may specify seeding requirements for range or pasture areas to retain forage production. Weed control measures would be implemented and revegetation efforts would be repeated if necessary."

Page 35, SPECIAL AREAS CONSTRUCTION. (continued)

- column 2. Replace the section entitled "Irrigation Canal Crossings" with the following:

"Irrigation Canal and Ditch Crossings"

"All permanently lined canals and ditches will be bored. Crossings will be scheduled for when the canals are dry if at all possible. Water flow would be maintained at all times unless arrangements are made with the affected parties to shut off the flow of water. Irrigation ditches and canals would be monitored for two seasons following construction to ensure the integrity of the ditch and canal banks. Chapter 3 lists the Bureau of Reclamation canals that would be crossed."

Page 48, TABLE 2-7, GENERAL PROTECTION MEASURES.

- Many of the measures in this table contain a provision for judgement and direction in the field by the authorized officer who will perform this duty on public lands. On private and state lands this duty will be performed by the environmental inspector. We believe that a description of the environmental inspectors' authority and responsibilities would be helpful to the reader. Also, TransColorado has committed to a number of additional mitigation measures that pertain only to private and state lands, such as in residential areas and on active agricultural lands. Consequently, the table of General Protection Measures should be separated into two tables: Public Lands, and Private and State Lands. Although there will be some degree of overlap between the two tables, the separation will more clearly identify for all parties what commitments have been made by TransColorado as they pertain to public or private lands, and include a description of the environmental inspectors' authority and responsibilities

  Attached to these comments, as enclosure 2, is an example of Table 2-7 that represents our current understanding of the commitments made by TransColorado to mitigate impacts on private and state lands. Please insert this table into the Final EIS. We realize that you may need to make some changes to make the table consistent with any additional information TransColorado has submitted.

Page 55, Table 2-7, Cultural Resources.

- Item 2. Replace "discovery is made" with "resources are discovered".

- Item 3. Replace "Archaeological" with "The required Class III" (as p. iii).

Page 55, Table 2-7, Cultural Resources. (continued)

- The items should be reordered to more accurately reflect cultural resources compliance processes (item 1 should be second, item 3 should be first).

Page 63, Table 2-8, Cultural Resources.

- line 9-10. The Southern Utes didn't actually sign the Programmatic Agreement as a concurring party. This should be reflected here and on page F-1.

- line 13. Revise the last sentence as follows: "Cultural resources will be evaluated for NRHP eligibility as part of the Class III study and mitigated according to a treatment plan. The treatment plan will be approved by the BLM/USFS, SHPO, ACHP and other appropriate parties."

Page 117, Cultural Resources.

- column 1, para. 1, lines 2-3. The phrase "archaeological and historical resources" is not inclusive of all types of cultural resources. Expand the phrase to be more inclusive, or delete (i.e., "A cultural resource overview was conducted for the 75-foot-wide ROW...").

- column 1, para. 3, lines 2-3. Capitalize "programmatic agreement".

- column 1, para 3, line 5. Replace "archaeological sites" with "historic properties", or "NRHP-eligible properties".

- column 2, para. 2, line 4. The year of "the initial gold strike" should be included.

- column 2, para. 4, line 4, to top of p. 119. Change "lead archaeologist" to "lead agency" or "lead agency archaeologist", whichever is correct.

Page 119, Native American Religious Concerns.

- column 1, line 8. Replace "The BLM and archaeologists" with "The BLM's archaeologists" as in Table 2-19, p. 95.

Page 164, Impacts to Cultural Resources.

- column 2, line 3. Replace "archaeological sites" with "cultural resources".

Page 165, Impacts to Cultural Resources, Conclusion.

- line 9. Replace "requires" with "would result in" (as on p. 176).

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Page 185, UNCOMMITTED MITIGATION.

- Please add the following to the UNCOMMITTED MITIGATION section:

"Additional FERC Mitigation"

Following are some environmental protection measures that TransColorado has not agreed to implement. These measures would be recommended as conditions to an authorizing certificate to make TransColorado's project more consistent with the FERC's Erosion Control, Revegetation, and Maintenance Plan.

1. TransColorado shall construct and maintain temporary water bars during project construction on slopes that drain into perennial streams, wetlands, and/or improved road crossings at the following spacing:

Slope (%)	Spacing (ft)
5 - 15	300
16 - 30	200

2. TransColorado shall construct trench breakers on all slopes that drain into perennial streams or wetlands, or onto improved roads to prevent the channeling of runoff or the migration of sediment along the trench. The trench breakers should be spaced so that the top of one breaker is at the same elevation as the bottom of the next breaker upslope but no closer than 50 feet. Trench breakers should also be constructed immediately downslope of any location where groundwater could enter and migrate along the trench at any time of year.

3. TransColorado shall not use blast rock to backfill the trench above the top of the existing bedrock profile.

4. TransColorado shall remove rocks larger than 4 inches in any shape or dimension from all segregated topsoil in agricultural and residential areas.

5. TransColorado shall fertilize permanent plantings, if requested by the landowner or recommended by the environmental inspector, on private or state lands.

6. TransColorado shall include noxious weed control measures as part of its right-of-way maintenance plan for the life of the project.

Page 188, Table 4-5.

- column 4. Revise to "Disturbance of cultural resources could result in the permanent loss of archaeological, historical and cultural data".

6

Page R-15, Prehistoric.

- Lengthen title to "Prehistoric Sites".

Appendix D, Recommended Revegetation Seed Mix.

- Please include the scientific names of the revegetation species.

Page F-1, Introduction.

- line 4. See comment for pg. 63.

Pages F-1 and F-2, Site Variables.

- The identification of Variables 9 through 15 in this text does not match their description in Table 3-5 (p. 118).

Page F-2, Significance Criteria.

- para. 1, line 1. Replace "sites and districts" with "sites districts, buildings, structures or objects".

- lines 1-3. Replace the second sentence with "Criteria for significance are found at 36 CFR 60.4".

- line 3. Insert ",structure" between "building" and "or".

- line 4. Place a comma between "materials" and "workmanship".

- line 7. Insert ", districts, etc." between "sites" and "having". Replace "local and regional as well as national importance" with "local, regional or national importance".

- line 8. Insert ", etc." after "site".

- line 9. Replace "eligible to the NRHP" with "eligible for listing on the NRHP". Replace "Keeper of the Register, one that" with "Keeper of the Register or one that".

- line 10. Delete "archaeologist" and the remainder of the sentence. Replace with "because it meets one or more of these criteria and possesses integrity".

- line 11. Insert ",etc." after "Sites".

- line 12. Insert "officially" before "assessed". Replace "must" with "should".

Page F-3.

- para. 3. This would be a good place to mention the Native American Graves Protection and Repatriation Act (PL 101-106 Nov. 1990).

7

Page F-3. (continued)

- line 3. Insert "or traditional" between "religious" and "significance".

Page F-3, Mitigation and Legal Mandates.

- para. 2, line 8. Add "and other appropriate agencies" after "SHPO".

Page F-3, Mitigation and Legal Mandates. (continued)

- para. 3. Please mention here that in certain situations, mitigation without removal can include maintenance or restoration of the setting (i.e., when considering the visual impact on a property eligible for listing under criteria other than "d").

Page F-4.

- para. 2. It should be made clear that this is a "state" law (Colorado Revised Statute 24-80.1301 through 1305).

Index No. 83

LA PLATA COUNTY

1060 EAST SECOND AVENUE, DURANGO, COLORADO 81301 • PHONE 303-259-4000 • FAX 259-4000, EXT 299

November 19, 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 south Townsend Avenue
Montrose, Colorado 81401

RE: LA PLATA COUNTY COMMENTS FOR DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR TRANSCOLORADO GAS TRANSMISSION PROJECT.

Dear Mr. Finch:

La Plata County would like to take this opportunity to make the following comments regarding the Draft EIS:

PR-39 1. La Plata County feels very strongly that any consideration for a new transmission pipeline serving Western Colorado should be designed above the current 22-24 inches proposed. It appears totally appropriate for FERC and the applicant's to consider all potential future gas reserves in order to meet future demand while at the same time reducing or eliminating the need for additional pipelines. It would appear such a consideration would eliminate the costs associated with preparing additional EIS's and go along way towards more prudently addressing the nation's natural gas needs.

CU-02 2. A determination needs to be made as to the applicability of archaeological survey requirements for private lands. Special consideration should be given to additional compensation to private landowners from TransColorado if they can in fact save money by not conducting such studies on private lands.

VS-17 3. Additional consideration must be given to any visual impacts particularly in our Corridor District.

EC-36 4. A more detailed socio-economic analysis should be undertaken to determine specific impacts to local jurisdictions created by the construction workforce and all related service personnel. TranColorado should prepare and present a detailed socio-economic impact mitigation plan for employment, housing, social services and other affect services. As with any large project, extending the construction time period will have more net negative impacts.

1

AC-04 5. Roads and transportation issues are absent from the summary and need to be specifically addressed for our County. Considerable pre-planning must be undertaken in order to determine any limitations or conflicts which could arise during the construction of the pipeline.

PR-40 6. La Plata County continues to be concerned for lost opportunities to have gas produced in La Plata County enter this pipeline. This issue needs to be re-visited with the local producers as well as with the Southern Ute Tribe.

RT-29 7. Consideration should be given to having the last portion of the proposed pipeline route diagonally cross Southern Ute Tribe land in the Cinder Gulch area to avoid additional ROW impacts to the La Plata agricultural users along the Shell Corridor.

EC-11 EC-18 EN-07 8. TransColorado applicants should more specifically address the needs and concerns of the private landowners and develop a detailed mitigation/ compensation plan which will meet the goals of all parties and jurisdictions involved.

RT-01 9. La Plata County feels very strongly that any portion of this proposed pipeline route that can be placed upon Public Lands, should be. The appropriate review will insure its placement on public lands will meet all regulatory requirements while at the same time not restricting or further restricting the use of private land.

Thank you for this opportunity to comment on an issue which is of great importance to La Plata County and its future as well as that of the rest of Western Colorado. Please contact me should you have any questions regarding our comments.

Sincerely,

Rusty Bonser

Rusty Bonser
Director of Planning Services

cc: Board of County Commissioners
TransColorado 1991 File

2

La Plata County is also concerne that the timing of construction for TransColorado can and most probably will coincide with the Animas-La Plata project and the cumulative effect on our County would be significant.

Index No. 84

SAN MIGUEL GREENS
BOX 160
NORWOOD, CO 81423

Nov. 21, 1991

Chuck Finch
Project Manager
BLM
2465 S. Townsend Ave.
Montrose CO 81401

Dear Chuck:

The San Miguel Greens, a small community action group in the Wright's Mesa area, have directed me to make this written comment on the proposed TransColorado Gas Transmission Project, in addition to my oral comments at the public hearing held in Norwood.
Also, I am speaking independently as a member of the Colorado Native Plant Society, the San Miguel Basin Weed Advisory Commission, the Sheep Mountain Alliance, the Western Colorado Congress, the Western Organization of Resource Councils, the Colorado Environmental Coalition and the Mineral Policy Center.
First, after a thorough reading of the draft EIS issued in

AL-08 August on this project, we would recommend you pursue the No Action Alternative.
We think your assumptions that a gas pipeline will be built similar to this one, regardless of the outcome of this project, begs the question. While we are aware of federal incentives to push for further development and production of natural gas as "an environmentally sound" alternative to coal and other "dirty" fuel and heating sources, we are not convinced of the economic soundness of this plan, or the several other competing projects being developed in the region at this time. We are not sure a transColorado project is the best way to make our natural gas reserves available to West Coast and Midwest markets. We think that some

GE-19 statistical analysis and actual hard figures need to be presented in the EIS to demonstrate more than "assumptions." This is the first and most glaring deficiency in the draft EIS.

AL-13 Please provide us with comparisons backed up by hard data between this project and the several others under consideration currently, as well as some sketch of possible future projects that may only be in the planning stages. We are well aware of the conflicts with rural landowners in the Cortez/Durango area over natural gas production and of the recent headlines over oil and gas fraud on the Navajo reservation in Utah and Arizona over oil and gas production. We think the oil and gas business will come under increased scrutiny because of these scandals. And we think the current boom in natural gas, which has attracted all kinds of quick-buck operators, will result in a public backlash against some of the improper practices of this industry. For that reason, we think a careful and rational analysis of this and all other pipeline projects in Colorado is necessary.

2

AL-08 The No Action Alternative also recommends itself in this situation because of the great amount of surface disturbance caused by such a project, especially when it would seem more cost effective and less destructive of Western Colorado's natural beauty (its strongest economic asset currently) to tie the Piceance Basin to the pipeline connections headed east and west north of the area, rather than south.

RT-16 RT-17 Further, we are concerned about the impact on the Southern Utes of this project and their purchase of a parcel of land along the proposed route with the intention of blocking this project. As Tom Shipps, attorney for the tribe, and Jerry Bruner, gas marketer for the tribe, have stated, the Blanco line the TransColorado line is supposed to connect to "is already filled" and "there's more gas being produced in southwestern Colorado and northern New Mexico than the lines can handle." (Daily Sentinel, Sept. 25, 1991.)

EC-01 EC-03 We see this project as again cheating the Indians out of an opportunity for economic development by competing with wells in the San Juan Basin for limited pipeline space to California and Midwest markets. We think the draft EIS is glaringly deficient in addressing these concerns, and insist that the EIS have a detailed analysis of the impacts of this project on Southern Ute oil and gas production delivery opportunities.

GE-12 In addition to the unresolved issues listed in the draft EIS, we think that the controversy over the route change proposed in the Norwood area also be included. We think none

GE-08 of these unresolved issues are adequately addressed in the draft EIS. A mere listing of them hardly qualifies as analysis in our minds. Please analyze the impacts of these unresolved issues and detail the impacts of the two proposed actions and the no action alternatives.
Finally, in support of the No Action Alternative, we would offer that the current rush to develop our natural gas reserves in Colorado is premature, regardless of how economically appealing such an action is to the industry. We think that political will should be exercised to prevent the rapid consumption of this precious and finite natural resource in light of the rapid consumption of so many other resources by our society. What will we leave our children but an exhausted land? We think that the present levels of consumption of natural resources by the United States is scandalous on an international scale. We are using up the world's resources at an incredible rate, as the Worldwatch Institute's annual State of the World publication so graphically illustrates. We think that the future will look very unhappily on the mad dash to use-it-all-up in this century (and in the past three decades, particularly). We are very conservative in our thinking that we must leave some of this resource in the earth for our children's children, and not be such selfish consumers. This liberal extraction of a limited resource, like natural gas, is a terrible mistake, we feel, and this pipeline is merely the ill-advised result of a very bad policy direction. To

approve this project would be, we feel, a sin against the future on the part of federal agencies responsible for protecting public resources.

Having said that, we would like to add several notes. Should the pipeline be approved, which we are strongly

RT-12 opposed to, we think the Agency Preferred Alternative, sprung on Wright's Mesa residents at the last moment, after other routes had been shown as the likely routes, is unacceptable. We think the disruption of private lands in this case is unwarranted, when the companies involved themselves have proposed a route that does not impact the growing tourist-oriented economy of San Miguel County. A

VS-14 clear-cut swath 50 to 75 feet wide up the second most used county road in the county and the access for hunters to the Lone Cone country and to anglers to Miramonte Reservoir is a

EC-37 scenic disaster in the making. As we noted in the public hearing in Norwood, no economic analysis appears in the draft EIS comparing the impacts on land values between the Wright's Mesa route and the route over near Redvale and Dry Creek Basin. We think that's essential and would demonstrate the higher economic cost of locating the pipeline in a growing recreation economy-dependent and traditional agricultural area of private ownership rather than primarily on public lands.

EN-06 Further, we are very concerned about the actions already undertaken by the pipeline company in surverying, often illegally, the proposed routes. KNEnergy did little to assuage our fears of high-handed operation in bringin the gas pipeline into Telluride. They promised a lot, failed to obtain permission for a building in a highly-visible scenic area near Telluride, blew a hole in a roof of a Fall Creek resident with dynamite and took months to repair it, hired out-of-state crews of minority origin at lower than local rates to build the thing, and did little to no revegetation of the right-of-way area, thus introducing many new infestations of noxious weeds into the county.

As a member of the San Miguel Basin Weed Advisory Commission, I think the BLM should be aware that a new state

RE-09 law gives this body the power to require the control of noxious weeds on private property, including pipeline right-of-ways, and can, upon failure of control, come on private land to do the control and make the landowners pay for that control. But, you should also be aware, that San Miguel

RE-12 County is in the process of considering an amendment to its land use code to require any project that disturbs the soil in this county to have a revegetation plan and monitoring system in place. Tossing a few grass seeds on the disturbed right-of-way won't do. There needs to be a careful revegetation plan, using primarily native species, to bring the land back to its natural state, as well as a long-term program of monitoring to be sure that introduced weeds are not allowed to grow and spread from the disturbed site.

Further, as a member of the Colorado Native Plant Society and a member of the Governor's Citizen Committee on the

March 18, 1991

Secretary
FERC
825 N. Capitol St. N.E.
Wash. D.C.

Re: Docket No. CP91-780-000

Dear Sir:

Although only sketchy information has been released in our area regarding this project, which I understand will cut a

REC-03 small corner through San Miguel County, as a member of a local environmental group, I am very concerned with the effect of this project in Montezuma County and its impact on the Escalante Recreation Area and the San Juan National Forest, as noted in your Notice of Intent which I received.

CU-03 Also, I am concerned about the implications for the many thousands of archaeological sites in Montezuma and Dolores Counties, especially in the Canone and Cross Creek region where it appears the pipeline will run. I have hiked the area extensively and know the area to be criss-crossed with ruins, many of them never excavated as yet. I have grave concerns about the effect of digging a pipeline through that area and disturbing these many sites.

TE-15 In addition, as a member of the Colorado Native Plant Society, I have found a wealth of unique botanical species in the region where the pipeline is slated to run, including some rare and endangered species. I would insist that a very thorough search and cataloguing for unique plants be undertaken before any proposed route is settled on, so that populations of such species can be avoided and proper mitigation be done, should that become necessary. I would seek thorough information on archaeological and botanical analyses before any pipeline work would begin, so that I and my colleagues could review the relevant data for the Colorado section of the proposed pipeline.

EC-32 Finally, given the previous proposal for a TransColorado pipeline project, I would question the economic feasibility of a second pipeline in this region. I would request detailed financial feasibility information on who would be served, what gas sources would be tapped, and how this project would not be negatively impacted were the TransColorado project to be approved.

These are my concerns at this time, although no detailed information beyond the general comments and map provided in the Notice of Intent document from FERC have been made available in my area, and it is impossible to give more detailed comment, not even knowing if our county is impacted

Idarado Superfund Lawsuit in Telluride, I have attended the High-Altitude Revegetation Conference in Ft. Collins, and am aware of some of the new techniques available to successfully revegetate high altitude sites disturbed in the course of construction. I am particularly concerned about the use of the appropriate native species for various areas, and the use of non-chemical controls (mechanical, biological and social) for the prevention of weed infestations. I would hope that Peggy Lyon (114 Co. Rd. 5, Ridgway, CO, 81432, 303-626-5526), who is president of our San Juan Chapter of CoNPS, would be contacted for help in deciding the appropriate native species in the local area for revegetation on particular sites.

In summary, the San Miguel Greens oppose this project as a ancillary mistake in the theft of the wealth of the future. We recommend that the BLM support the No Action Alternative. Knowing that there are powerful interests behind the project, we fall back on the position that if you do approve it, you do the added studies and analyses recommended above in the final EIS, that you do not take the Agency Preferred Route though Wright's Mesa, and that you very, very carefully structure adequate revegetation and monitoring throughout the entire course of the route.

We thank you for this opportunity to comment, and are only sorry that as volunteer citizens we cannot do real justice to the draft EIS and spend the hundreds of dollars in time in would take to go through the draft EIS page by page.

Sincerely,

Art Goodtimes

San Miguel Greens
Box 160
Norwood CO 81423

SC-07 or not by this project. I very much believe that more detailed information needs to be provided if local citizens are to be expected to make detailed and specific comments on this pipeline proposal. I would ask that the time period for scoping comments be extended so that comments may be made after a closeup look at the proposal is made available to us.

Thank you for including me in the initial scoping process, and please include my name on the mailing list for all further information on this proposal.

Sincerely,

Art Goodtimes
San Miguel Greens
Box 160
Norwood Co 81423
303-327-4767

cc: Ms. Lauren H. O'Donnell

Index No. 85

Western Colorado Congress

Main Office
7 North Cascade Avenue
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835 East Second Avenue
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November 21, 1991

Bureau of Land Management
Montrose District Office
Attn: Mr. Chuck Finch, Project Manager
2465 South Townsend
Montrose, CO 81401

Re: Proposed TransColorado Gas Transmission Project
Draft Environmental Impact Statement Comments

Dear Mr. Finch:

The Western Colorado Congress (WCC) would like to submit the following comments regarding the proposed TransColorado natural gas pipeline Draft Environmental Impact Statement (DEIS).

WCC formed in 1980 and is a grassroots organization of individuals and a coalition of ten community groups based in western Colorado. Our overall purpose is to involve people in decisions that affect their lives.

Most of our 1,300 members have lived through the boom and bust of natural resource development more than once, and stand to be affected, directly and indirectly, by projects like this one. Thus, we have a keen interest in participating in decisions regarding whether and how to develop natural resources, especially those that are nonrenewable, in western Colorado.

WCC members and staff have been researching the impacts and implications of the proposed pipeline for over a year. What follows are our primary concerns with the DEIS.

I. PURPOSE OF AND NEED FOR THE PIPELINE

According to the DEIS "the purpose of the proposed TransColorado Gas Transmission Project is to provide a regional natural gas transmission system to transport natural gas from the Western Slope of Colorado and the Rocky Mountain region to major interconnections with other interstate pipelines for ultimate delivery to Southwest, Midwest, and California markets." While this statement on its face is not incorrect, it does not tell the whole story. An unstated purpose is to make money for those companies that undertake to construct and operate the pipeline. This point is important to emphasize because "public need" and "private profit" are not necessarily synonymous nor compatible and the BLM needs to carefully document in its FEIS that there truly is a public need for this pipeline.

PUR-01

The 1990 Public Scoping Document listed four goals for the proposed pipeline. In our scoping comments (Sept. 7, 1990) we listed each goal and stated our concerns related to those goals. The DEIS did not sufficiently address our concerns. We will restate those goals and concerns and our additional comments on the DEIS.

Goal 1: To alleviate transmission system capacity constraints that presently prevent numerous Rocky Mountain region producers from marketing their gas supplies.

We want to see documented evidence of the capacity constraints of existing gas pipeline systems. There is a plethora of pipeline systems in the West. The FEIS should document the volume of gas that existing pipelines are designed to transport and are actually transporting and where the gas is being accessed and marketed.

PUR-07

As one example, Questar is building an 81-mile natural gas pipeline that will link its 2,300 mile northern and southern supply systems. According to Questar president A.J. Marushack, this pipeline will allow the company at some point to expand into the West Coast market. How does this pipeline fit in with the proposed TransColorado pipeline?

SC-08

Goal 2: To expand marketing opportunities for producers and brokers throughout the Rocky Mountain area.

The FEIS should provide evidence that adequate gas supplies and markets exist to support the proposed pipeline. Such evidence should include contracts between gas producers/brokers and buyers and signed interconnection agreements.

PUR-02

This requirement is especially important because TransColorado has asked the Federal Energy Regulatory Commission (FERC) to issue an Optional Expedited Certificate. Under this certificate, TransColorado has asked FERC to declare that the proposed pipeline is in the "public convenience and necessity" primarily because the company is willing to assume the economic risk for the venture. In other words, if TransColorado cannot "sell" its pipeline to enough prospective gas shippers to cover its costs the company is willing to absorb the economic loss.

The problem with this line of reasoning is that it is not right to impact both people (private landowners, for example) and the environment by constructing a pipeline without first having clear, persuasive evidence that there are adequate gas supplies and markets to support such a pipeline. Public convenience and necessity must include other factors besides the developer's willingness to assume the economic risk.

☑ Member group of Community Shares of Colorado

The FEIS should also examine the effects of extending or eliminating the tax credit for coalbed methane development on the economic viability of the pipeline. As we will discuss later, the TransColorado pipeline is intimately tied to coalbed methane development in the region. In 1979, facing the energy crisis, Congress established a tax credit for developing nonconventional fuels - including coalbed methane. "The tax credits are so favorable that they can dwarf the production economics and risk involved," says John E. Olson, a First Boston Corp. natural gas analyst. The credit, tied to inflation and oil prices, can easily add 50 percent to a company's gross revenues.

PUR-06

Goal 3: To contribute to the improvement of air quality conditions in those markets where natural gas is used in cogeneration applications and vehicle operations.

In touting the benefits of the pipeline, one company official told WCC members to think nationally, not locally. Maybe by sacrificing some environmental quality in western Colorado we can gain some environmental benefits in southern California, he said. This argument rings hollow to many of us who live in western Colorado. We are far too accustomed to being a natural resource supply region for the rest of the United States with little to show in return.

If TransColorado is going to claim air quality benefits in areas where the natural gas will be marketed then there is an equal obligation to assess the air quality costs in areas where the gas is extracted and transported. The FEIS should include a net air pollution audit of the entire project that includes not only the potential air quality improvements in market areas where natural gas will be used in electric generation and vehicle operations but also the air quality degradation that will occur in the Rocky Mountain West from the increased exploration, development, production, and transportation of natural gas.

AI-15

Goal 4. To provide a competitive transportation alternative for both conventional production and coalbed methane reserves in the states of Colorado, Wyoming, Utah, and New Mexico.

This statement says it all. TransColorado admits that there are alternative ways to transport the gas and that it will be competing with other companies. The FEIS needs to further assess other transportation alternatives, including the use of existing pipelines.

AL-12

II. PURPOSE OF THE EIS

According to project manager Chuck Finch, "The EIS is not a decision making document. The EIS merely documents the preferred alternate (route) the pipeline can go" (Montrose Daily Press,

GE-15

July 26, 1990). We take exception to this statement and hope that it is not indicative of the spirit with which the EIS will be prepared.

GE-15

According to the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA:

The primary purpose of an environmental impact statement is to serve as an action-forcing device...It shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment...It shall be used by Federal officials in conjunction with other relevant material to plan actions and make decisions (emphasis added). 40 C.F.R. 1502.1.

III. SCOPE OF THE EIS

The breadth of an EIS is known as its "scope" and the scoping regulations implementing NEPA specifically state that "connected actions", "cumulative actions", and "similar actions" must be addressed in the same EIS. 40 C.F.R. 1508.25.

WCC believes that "the project" is much more than just the proposed TransColorado pipeline. According to the DEIS, increased natural gas production from the areas to be served by TransColorado is anticipated, assuming that transportation facilities are in place to deliver the gas to market. The DEIS also states that TransColorado would transport both conventional and coalbed methane reserves in the states of Colorado, Wyoming, Utah and New Mexico.

Clearly, there is a connection between the pipeline and increased natural gas production. In 1990, customers of Rocky Mountain Natural Gas received a flyer on the pipeline with their bill. The flyer states that "this pipeline will...stimulate natural gas production." At a 1990 public scoping meeting in Montrose, Kim Blair of TransColorado said that the pipeline would expand production opportunities - especially for coalbed methane reserves. At a Garfield County Commissioners meeting on June 16, 1990, Rich Chamberlain of WestGas said that the pipeline should stimulate coal bed methane gas production. Company officials were quoted as saying in a February 19, 1990 Montrose Daily Press article that the "pipeline may stimulate production of coal-bed methane in the Piceance Basin and the revival of scores of shut in <conventional> wells in the area."

The TransColorado pipeline alone will not deliver all of this gas to market, although it is a big part of the picture. TransColorado is part of a massive transportation system that is in various stages of planning and construction in the West.

According to the October 9, 1989 issue of the Oil and Gas Journal:

Significant expansions of gas processing, field gathering, and pipeline systems have been announced for bringing these new <coalbed methane> supplies to market. For example, El Paso Natural Gas is planning to add 26 miles of large diameter pipe and install 3,600 hp of compression to its San Juan Triangle System to carry 500 MMcfd of mainly San Juan basin coalbed methane. Also, Northwest Pipeline is planning to lay 154 miles of 30 inch pipe to link 500 MMcfd of coalbed methane and shut-in conventional gas at the Ignacio gas plant at Durango, Colo., with the Transwestern Pipeline system serving California.

Thus far, the BLM's analysis has focused solely on the impacts of the TransColorado pipeline. It is clear that the BLM needs to prepare an FEIS which discusses the environmental impacts of all of the above-mentioned activities. The FEIS should include within its scope a discussion of the environmental impacts of related federal actions occurring outside of the TransColorado pipeline itself. The Tenth Circuit Court has held that "[a]s an overall regional pattern or plan evolves, the region-wide ramifications of development will need to be considered at some point." Park County Resource Council, Inc. v. United States Dept. of Agriculture, 817 F.2d 609, 623 (10th Cir, 1987).

SC-10

Plans for the development of both conventional and coalbed methane gas throughout Colorado, New Mexico, Utah and Wyoming are solidifying rapidly. According to the DEIS, TransColorado would directly connect to gas reserves in the San Juan Basin, the Piceance Basin of west-central Colorado, and the Uinta Basin of Utah. TransColorado would also be able to transport gas from the Green River and Wind River Basins of Wyoming through interconnects with partner systems.

The FEIS must analyze the environmental impacts of: (1) the TransColorado pipeline, (2) the entire transportation system that will be needed to transport the gas to market <not just the TransColorado pipeline itself>, (3) the gas exploration, development and production that is stimulated by the TransColorado pipeline in the Piceance, San Juan, Uinta, Green River and Wind River Basins, and (4) the disposal of gas exploration and production wastes.

SC-11

A region-wide EIS of this sort is not without precedent. The BLM prepared an EIS in the late 1970s, the West-Central Colorado Coal Environmental Statement that analyzed six proposed mining and reclamation plans to mine federal and private coal between 1980 and 1990. This EIS analyzed the aggregate impacts of the six site-specific proposed actions and the cumulative impacts of coal and non-coal related development in a seven-county area covering 9,285,650 acres of private and federal lands. It also

provided site-specific analyses of the six proposed actions.

The BLM prepared an EIS in 1983 for the Uinta-Southwestern Coal Region that assessed the environmental consequences of four alternative levels of coal development in a 24 county region in Utah and Colorado. The analysis was regional in nature, however, in certain areas, site specific analysis was also conducted. The EIS focused on many issues including air quality, water resources, land use, socioeconomics, transportation, and much more.

These are just two of many examples where the BLM has prepared a region-wide EIS that examines in a broader sense the development of a non-renewable resource. The TransColorado pipeline is really just part of a larger regional drilling, production and transportation program designed to deliver coalbed methane and conventional gas supplies to new markets. It appears that the BLM is obligated by law and precedent to acknowledge the magnitude of this program and prepare a region-wide EIS.

SC-12

IV. ANALYZING NON-FEDERAL ACTIONS

As we have argued above, the BLM should prepare a region-wide EIS that analyzes the environmental impacts of the proposed TransColorado pipeline and connected federal actions, such as the anticipated increase in the development of natural gas.

The next question is whether or not this region-wide EIS should analyze the environmental impacts of non-federal actions.

NEPA requires that an EIS be prepared for all "major federal actions significantly affecting the quality of the human environment." 42 U.S.C. 4332(2)(C). While only federal actions are subject to NEPA requirements, a federal agency may be compelled to discuss the environmental impacts of non-federal actions in an EIS prepared for a federal action, if there is a sufficient link between the federal and non-federal action. An EIS must discuss the "cumulative impact" of a federal action, and this is defined as:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (emphasis added). 40 C.F.R. 1508.7.

In light of the requirement for a cumulative impacts analysis in an EIS, the FEIS should further analyze the environmental impacts of the TransColorado pipeline on private land as well as any

SC-13

"reasonably foreseeable" natural gas development and gas-waste disposal on private land.

V. ENVIRONMENTAL EFFECTS

We suggest that the following environmental effects be addressed in the FEIS in addition to those associated with the construction of the proposed TransColorado pipeline that were identified in the Public Scoping Document and the DEIS.

A. Transportation System

The FEIS should address the environmental effects of the entire transportation system needed to transport the gas to market. We understand that Northwest Pipeline, El Paso, Meridian and Transwestern are all building or planning to build new gas processing plants (near Bloomfield, New Mexico) and/or pipelines (from Ignacio, Colorado to California). Also, the environmental effects of gas wells and gas-field gathering lines (especially on private property) need to be addressed. These wells and gathering systems have a far greater site-specific impact on the environment than interstate pipelines.

AC-05

The FEIS should address the impacts of gas development and transportation on the visual attractiveness and aesthetics of the land. This information can be useful to private landowners who we believe should be compensated for aesthetic damage to their land and diminished property values resulting from that damage.

VS-18

Gas pipelines also have various types of waste discharges that need to be addressed in the EIS. How will "pigging wastes" be handled and disposed of, for example?

PR-51
WA-02

B. Natural Gas Development

As we have argued, the TransColorado pipeline will stimulate the development of both conventional gas and coalbed methane reserves in a four-state region. Unless proper precautions are taken, both conventional gas and coalbed methane development can significantly harm the environment. We will focus our comments largely on the environmental impacts of coalbed methane development, although both types of development need to be thoroughly addressed in the FEIS.

Coalbed methane development - drilling for natural gas in coal seams - is the latest trend to take the gas industry by storm. Seventy-two percent of coalbed methane reserves in the United States are located in the West - with the San Juan and Piceance Basins containing nearly half of these reserves.

The San Juan Basin has been targeted as one of the first areas in the U.S. for experimenting with this new technology. Hundreds of

coalbed methane wells have been drilled in the basin and hundreds more will be drilled in other areas.

Coalbed methane production results in many environmental impacts including damage to land and water resources and wildlife habitat. All of these impacts need to be addressed in the FEIS.

WA-29

(i) Air Pollution.

TransColorado argues that natural gas is a clean burning fuel whose use should be encouraged to help clean-up the nation's air, but this argument overlooks pollution during the production stage. Large amounts of carbon dioxide - a major cause of global warming - naturally occur with the coalbed methane, and many producers now vent this gas directly into the atmosphere. For example, we understand that a gas processing plant is now being constructed near Bloomfield, New Mexico to remove carbon dioxide from the methane and vent it into the atmosphere.

Once again, we call for a net air pollution audit of the entire "project" so that all the facts can be known and the entire scope of the project is brought into view. Such an audit should include an accounting of how air quality is being improved and degraded from the exploration, production, gathering, processing, transportation, and end use of conventional gas and coalbed methane reserves.

AI-15

(ii) Waste Water Disposal.

Along with conventional gas development and its associated toxic wastes, huge amounts of unpotable water must be removed from coal beds prior to methane production. Removal and disposal of this water along with other chemicals and toxic wastes pollutes irrigation water and fresh water aquifers and drinking water supplies.

WA-30

Most of the waste water from coalbed methane wells is disposed of in injection wells although waste water is also disposed of in above-ground evaporation pits. Over the next twenty years, one billion gallons of gas-well waste water could be pumped into the ground in La Plata County alone through injection wells. The depth of injection wells depends on the geology in an area. Waste water is usually injected into geologic formations that are not used or do not have the potential to be used for drinking water. In southwestern Colorado, injection wells are required to be deeper than the Fruitland formation (from which the coalbed methane is produced), or approximately 2,500 to 3,000 feet.

A wide variety of gas field wastes are disposed of in injection wells. The waste water contains biocides and total dissolved solids - including sodium and other salts. Most of the biocides will kill fish in concentrations as low as 10 parts per million.

It also contains toxic drilling mud additives such as chromium, lead compounds and formaldehyde. Some of the waste water is contaminated with traces of exotic hydrocarbons such as benzene and toluene. And, the waste water also contains traces of methane.

The effects of pumping this amount of waste water underground are largely unknown. Water injection is not new, but what is new is its application to gas extraction from underground coalbeds. Of utmost concern is the potential for contamination of drinking water wells and aquifers.

When coalbed methane development escalated in southwestern Colorado and northern New Mexico, reports of methane in water supplies and citizen concerns about leakage from evaporation pits led the New Mexico Oil Conservation Division to start testing domestic water wells and groundwater aquifers. The Conservation Division organized a water fair to test domestic water wells including some wells located in La Plata County, Colorado. Test results indicated that 39 water wells surrounding the Colorado/New Mexico state line were contaminated with methane (60 wells now show signs of contamination). The source of the contamination could be natural or human-caused by improper construction of gas wells, migration of methane through geologic formations, or leakage from evaporation pits. The contamination has alarmed state and federal regulatory agencies as well as citizens.

(iii) Methane Migration.

MI-04 Recently, the State of New Mexico has uncovered proof that coalbed methane can migrate through geologic formations into fresh water aquifers. The following quote from an article that appeared in the Durango Herald explains how this migration occurs.

When a Fruitland coal-bed gas well is drilled, water in the formation is pumped out in order to change the pressure on the coal and allow the coal matrix to release the gas. That change in pressure allows the gas not only to escape through the gas-well bore, but to migrate in other directions throughout the formation. The steel casings in many older gas wells drilled into formations deeper than the Fruitland were not required to be cemented across the Fruitland...The migrating Fruitland gas can enter the well bore through the uncemented portions and move upward into water aquifers and to the surface.

This discovery has prompted New Mexico to order oil and gas companies to perform remedial work on more than 120 deep gas wells in northwest New Mexico where water wells are contaminated.

VI. SOCIOECONOMIC EFFECTS

The following socioeconomic effects need to be addressed in the FEIS.

A. Transportation System.

(i) Reduced Land Values.

Pipelines located on private land often significantly reduce the land's market value. The presence of a pipeline can decrease a property's attractiveness and usefulness, thereby decreasing its value to a prospective buyer. Noise, water and air pollution, visual impacts, trespassers, the perpetual presence of a company, and health and safety concerns all greatly diminish the net worth of the surrounding land to owner and buyer alike.

EC-14 The EIS should quantify the effect of the pipeline on land values
EC-15 and on the economic livelihood of people who own and/or use lands crossed by the proposed pipeline.

B. Natural Gas Development.

(i) Effects on Local Infrastructure and Services.

Grand Junction Daily Sentinel reporter Bob Silbernagel aptly summarizes one company's plans to develop coalbed methane reserves and the related socio-economic impacts.

Already one company, Oryx Energy, has filed for 38 wells in Mesa County, all north of Collbran near the Mesa County line. Altogether, the company has proposed 67 coalbed wells in Mesa and Garfield Counties over the next two years, some on public and some on private lands. Associated with them would be 33 miles of roads and 67 miles of pipeline...Some 250 workers would be employed at the peak, and there are worries about how these workers will affect the already tight housing market in Garfield County. Other concerns include traffic problems, road and bridge deterior- ation from heavy trucks, the environment and demands on emergency and medical care (Grand Junction Daily Sentinel, March 17, 1990).

EC-39 Road construction and maintenance is primarily funded from taxes on motor fuel. Are present funding formulas sufficient to meet the needs of maintenance required because of increased traffic flows and to accommodate any additional road construction?

(ii) Loss of Royalty Income.

EC-38 In some gas producing areas conventional gas production is being replaced with coalbed methane production. The EIS should quantify

EC-38 the economic impacts to mineral owners (thru loss of royalty income) of shutting down existing conventional gas wells.

VII. PROTECTION FOR PRIVATE LANDOWNERS

Approximately 30 percent of the TransColorado pipeline will cross private land. TransColorado will have to obtain right-of-way agreements to cross this property or, if the company and the landowner fail to agree, the landowner will be taken to condemnation court.

The fundamental failure of Colorado's eminent domain law is that it is weighted toward the condemnor. The law was written with an inherent bias for development, and gives too little protection to owners of private property. There are several initiatives that the BLM and/or TransColorado could take based on serving the needs of the private property owner, which could also greatly enhance landowner acceptance of the project.

EN-05 ** Locate the pipeline on federal land as much as possible.

RT-01 ** Notify in writing every potentially affected landowner as
GE-20 soon as possible.

EC-18 ** Make available to the public accurate maps of land ownership in and around the proposed pipeline corridor.

** Compensation for the landowner is wholly inadequate. Compensation should be expanded to include: (a) a landowner's personal time and expense--including atttorney's fees, and (b) scenic and visual damages. Compensation should be renegotiated and paid annually as land values change--just as is done with federal land.

** Damages to the remainder of the property ought to be standardized and guaranteed to the landowner. Also, the burden of proof should rest on the condemnor rather than the landowner. In other words, the condemnor should have to prove and guarantee that no damage has occurred to the surface right-of-way or remainder of the property. Landowners should have the right to be compensated for damages that arise after the pipeline is built including, but not limited to, loss of and intrusion on privacy, noise disturbances, and the intrusion of unwanted visual stimuli.

** Alternate methods of negotiating compensation such as lease or license arrangements are options that ought to be available to landowners.

** Incremental increases in compensation should be granted to a landowner for each additional project placed in a corridor across his/her property.

** Reclamation of disturbed land must be to an equal or higher condition or use, and a BOND should be placed in escrow to insure that it is. Contractors and sub-contractors should be bound to the same terms as the condemnor. Penalties--payable to the landowner--should be established for non-compliance.

** Limitations on the length and time of access should be included in right-of-way agreements and re-negotiation of these limitations should occur at specified time intervals.

** Terms and conditions in easement grants regarding impacts to private lands should not be negotiable from the company's standpoint if the owner's environmental and ownership concerns and private property rights are within the scope of protections and demands afforded BLM, National Forest and Indian Reservation lands. The price for crossing and damages to the property and owner should be the only negotiable items.

** Minimum amounts of land should be affected, and the pipeline should be designed so that other projects could be built in the same right-of-way.

** Surveying should not be allowed before the necessity of the project is established.

** Environmental reclamation standards on private land need to be as stringent as those on public land.

We also wonder what liability the landowner assumes when employees of the condemnor and contractors or sub-contractors are allowed to come on or across private land with their own vehicles in a non-business capacity. We raise these points and questions because of the bitter experience of our members from earlier pipeline projects.

VIII. REASONABLE RANGE OF ALTERNATIVES

The BLM is required by statute and regulation to consider reasonable alternatives to proposed actions. The only alternatives the BLM considered in the DEIS <with the exception of the no action alternative required by law> are those that analyze different routing locations for the pipeline.

AL-02 One of the stated goals of the TransColorado pipeline is to improve air quality conditions in market areas such as southern California by substituting natural gas for oil in electric generating plants and by using natural gas in vehicles. It is incumbent upon the BLM to analyze in the FEIS other alternatives for achieving this goal.

It is interesting to note here that at one time the Federal government encouraged a switchover from gas-fueled to oil-fueled combustion turbines to generate electricity because of the perceived shortage of natural gas reserves. Whatever the case, burning natural gas to generate electricity to heat homes and buildings or run air conditioners is an energy absurdity. From the standpoint of energy efficiency, it is better to use natural gas itself as a home heating fuel. Some argue that the generation of electricity from natural gas should not be allowed at all - let alone to promote unlimited growth in southern California.

The Union of Concerned Scientists, a non-profit organization known for its thorough and objective research, is advocating that the United States make substantial reductions in our use of coal, oil and gas! The UCS argues that in the long run, fossil fuels will have to be replaced by renewable energy sources, particularly solar, wind, and biomass. Rather than contributing to the long-term needs of the nation, it appears that the TransColorado pipeline represents just another quick energy fix.

In light of the above discussion, the FEIS should analyze such questions as:

AL-13

- What renewable resources are available for generating electricity in the market areas at what cost?
- What is the cost of new pollution control equipment versus burning natural gas?
- To what degree is conservation contributing to decreased energy use in the market areas?
- What is southern California doing to reduce its vehicle traffic (a major source of air pollution)?

Perhaps one way to clean-up southern California's air other than fuel switching is for the area to implement an aggressive conservation program. Conservation can contribute a very large share of new energy in the market areas. And the environmental benefits of conservation are substantial.

> ...Reduction of electric demand due to conservation measures can help the region avoid construction of new conventional energy resources with their accompanying environmental impacts. Conservation "generates" electricity without transmission lines, pipelines, significant air or water pollution, noise, solid and hazardous waste, or land use impacts...Conservation is not likely to harm fish and wildlife (Northwest Conservation and Electric Power Plan, 1983).

Some regions in the United States have de-emphasized the role of combustion turbines fueled with natural gas or oil in meeting electricity demand. In the Northwest, combustion turbines are included only as insurance to meet unexpected load growth. Surely, those people who live in the market areas targeted to receive gas from the TransColorado pipeline can come up with more creative (and less environmentally damaging) ways to clean-up their air than replacing oil with natural gas?

Several other goals of the TransColorado pipeline are equally circumspect and thus we would like to offer the following suggestions for alternatives to be considered further in the FEIS.

AL-04

** One alternative needs to examine other means for transporting natural gas to the targeted marketing areas. The WyCal and Kern River pipelines, for example, have gone on record stating they are capable of transporting gas reserves from the Rocky Mountain West to southern California. Wycal and Kern River are protesting the expansion of the TransWestern pipeline system.

AL-02

** Another alternative should examine other options for improving air quality in the market areas besides burning natural gas to generate electricity and power motor vehicles. Such an alternative could focus on conservation. Burning natural gas to generate electricity and/or to run motor vehicles is really only a stopgap measure. Long term solutions are needed. It is time for southern California to stop ravaging distant regions so that it can continue to maintain an unrealistic rate of growth.

IX. MITIGATION

The environmental impacts of the project on public and private land must be minimized through proper mitigation. Under NEPA regulations mitigation includes: (1) avoiding the impact altogether by not taking a certain action or parts of an action, (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation, and (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

EN-13
PR-41

The EIS should clearly state what mitigation measures are to be implemented on private and public land with an emphasis on avoiding impacts altogether.

X. ROUTING OPTIONS

The proposed pipeline route has encountered some heated opposition in some areas. Montezuma County, for example, has passed a resolution closing the utility corridor through the Hesperus/Shenandoah area. We understand that the county has

submitted optional routing suggestions to the BLM and we urge that these suggestions be given serious consideration. In general, we suggest that:

RT-01

** the pipeline be located on federal land as much as possible,

** wherever the proposed route passes on private land but is within one-half mile of public land special consideration be given to moving the pipeline off of private land.

XI. FEDERAL AGENCY COORDINATION

The BLM and U.S. Forest Service are currently preparing (or have prepared) several EISs in the region related to oil and gas development. The San Juan National Forest is preparing a FEIS for coalbed methane development in a 72,000 acre area called the HD Mountains. The White River National Forest has prepared an EIS on coalbed methane development activities in the Divide Creek Unit located on Forest Service and BLM lands approximately 10 miles southeast of Silt, Colorado. The BLM is preparing an EIS for five resource management areas within the State of Colorado to estimate oil and gas development potential and to base a leasing strategy on this potential.

SC-10

How does this particular EIS relate to the EISs mentioned above and other environmental analyses not mentioned which may exist and are relevant? What kind of communication and coordination is ongoing both within the BLM itself (i.e., between various resource management areas and districts) and between the BLM and U.S. Forest Service?

GE-25

XII. CONCLUSION

In summary, we would like to state that we are neither supporting or opposing the pipeline. We do, however, have serious reservations about the purpose and need for the pipeline and believe that "the project" entails much more than just the pipeline itself - such as increased natural gas production.

We are also greatly concerned about the impacts of the project on private landowners and citizens generally, including our members, in western Colorado. In 1990, one of our members received a letter from TransColorado seeking permission to survey on his property. We question the efficacy of the whole EIS process if the company is so sure of itself that it is already harrassing private landowners before a route has been approved, certificates granted, or permits issued.

We again issue a challenge to TransColorado to not set foot on any person's property until the FEIS is completed and all of its required certificates and permits have been secured. To do

anything less places an unnecessary burden on private landowners, constitutes harassment, and is simply not the right thing to do.

Sincerely,

Jerry A. Swingle / KLW

Jerry A. Swingle
Western Colorado Congress

Index No. 86

City of Grand Junction, Colorado
81501-2668
250 North Fifth Street

November 21, 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

Re: Review Comments on Draft Environmental Impact Statement
Proposed TransColorado Gas Transmission Project

Dear Mr. Finch:

Transmitted herewith are the official comments of the City of Grand Junction on the Draft EIS for the proposed TransColorado project. These comments are in the form of a resolution adopted by the Grand Junction City Council with comments developed both in-house by City personnel and by the professional firm of Camp, Dresser & McKee.

Our comments are primarily focused on the segment of the proposed pipeline that would cross the slopes of the Grand Mesa, traversing City owned property in this area and the public water supply of the City of Grand Junction. The City's conclusion is that the Draft EIS does not provide enough site-specific analysis for the City to be able to assess the extent or significance of the environmental impacts of the pipeline project in the City's watershed.

WA-01

You will notice that the City is requesting cooperating agency status in the NEPA review. The City plays a large decision making role in this project and, at this critical stage of the environmental review, has certain obligations to fulfill under NEPA which can only be accomplished by providing critical input to the lead agency as a cooperating agent.

Thank you for the opportunity to provide comments on the TransColorado Draft EIS.

Sincerely,

Tim Woodmansee
City Property Agent

Enclosure.

RESOLUTION NO. 57-91

STATING THE OFFICIAL COMMENTS OF THE CITY OF GRAND JUNCTION ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED TRANSCOLORADO GAS TRANSMISSION PIPELINE PROJECT

WHEREAS, TransColorado Gas Transmission Company is proposing to construct and operate a natural gas pipeline from Meeker, Colorado to Bloomfield, New Mexico; and

WHEREAS, in accordance with the National Environmental Policy Act, an environmental impact statement (EIS) must be prepared for projects that are projected to have a significant impact on the quality of the environment; and

WHEREAS, a Draft EIS, which allows for comments by affected interests prior to the issuance of a Final EIS, has been prepared under the direction of the Montrose District Office of the Bureau of Land Management (BLM) and the United States Forest Service; and

WHEREAS, the Draft EIS explains that the proposed project would traverse the slopes of the Grand Mesa, including portions of the Somerville Ranch owned by the City, the Whitewater Creek, Kannah Creek and the North Fork of Kannah Creek drainage basins, and both the Kannah Creek and Purdy Mesa water transmission pipelines, all of which provide the domestic water supply for the City; and

WHEREAS, in order to be considered in the Final EIS, written comments on the Draft EIS must be received by the BLM on November 22, 1991.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GRAND JUNCTION, COLORADO:

That the following questions and comments, which in some instances contain direct citations from the Draft EIS, shall be submitted to the BLM for consideration in the Final EIS:

1. REQUEST FOR COOPERATING AGENCY STATUS: The City is both owner and manager of land, water rights and waterworks affected by the proposed project and, as such, has special knowledge of the affected area. Furthermore, because the proposed project would require the issuance of a Watershed Permit from the City, the City has discretionary authority over the project. The City therefore requests cooperating agency status in the NEPA review to support its decision-making role in the proposed project.

AU-04

2. VISUAL IMPACTS: The proposed pipeline where it would traverse the northwest shoulder of the Grand Mesa "crosses areas of moderate to high landslide susceptibility and represent a high risk of impact from pipeline construction" (pp.99-101, DEIS). "In the Grand Junction and Palisade areas, residents are concerned about the visual effects of the pipeline on the western flank of the Grand Mesa and about impacts on municipal water supplies in the Palisade municipal watershed" (p. vi, DEIS).

The Draft EIS has evaluated the visual impacts of the proposed project based solely on the existing BLM visual resource management classification (Class III). The Class III designation does not appear to adequately represent the importance of the Grand Mesa as a visual resource, which is one of a half-dozen most sensitive visual environments on the pipeline route. The visual objectives in these classes allow for management activities which are not visually evident and which will not attract the attention of the casual observer. Additionally, the City is working cooperatively with the Grand Junction District Office of the BLM to create a Special Management Area for the western slopes of the Grand Mesa. The objectives of the impending Special Management Area plan cannot be obtained with the visual analysis/impacts/mitigation practices outlined in the Draft EIS.

VS-19
VS-24
SC-14

To more fully address impacts to visual resources, the Final EIS should contain or address the following:

1. A pictorial analysis showing views of the affected area in its present condition and simulated views after construction from representative vantage points;

VS-20

2. A Visual analysis of the pipeline on the aesthetic quality of the landscape from nearby as well as distant vantage points;

3. Specific and detailed descriptions of methods and practices to be implemented for mitigation of visual impacts, and where visual impacts cannot be mitigated;

VS-21

4. Would the pipeline ROW have a noticeable effect on the quality of the slopes of the Grand Mesa landscape?;

5. From what vantage points will the pipeline ROW be noticeable?;

6. A visual analysis which considers the regenerative potential of existing tree species, especially the pinyon-juniper community, and consider the view in different seasons;

VS-22

7. For how many years would the ROW remain noticeable?

VS-23

3. TOPOGRAPHY/GEOLOGY: "The topography varies from level, gently sloping valley floors to flat mesa tops. The route skirts the Grand Mesa, which is the largest flat-topped mountain in the world. Several geologic hazards were reviewed as potential concerns to the proposed and agency preferred routes. The proposed and agency preferred routes would cross areas that have documented landslide incidents or areas that have a moderate to high landslide susceptibility" (p.99, DEIS).

The landslide features on the Grand Mesa crossed by the proposed and agency preferred routes comprise 8.3 miles of landslide deposits and 1.7 miles of active landslide areas (p.100, table 3-2, DEIS). "Landslide deposits are areas underlain by landslide debris which do not show evidence of recent movement" (p.100, DEIS). Active landslide areas show evidence of recent landslide movement based on field observation of disrupted vegetation. These areas represent a high risk for impacts from pipeline construction and may require special mitigation measures" (p.101, DEIS).

The proposed and agency preferred route would encounter steep slopes (defined as those 15 percent or greater, p.99, DEIS), on portions of the Grand Mesa. On Grand Junction City property, these slopes exceed 40% (Figure 3-1, DEIS). "Steep slopes increase the soil erosion hazard" (p. 108, DEIS). "Soil stabilization and revegetation after disturbance may be difficult along several portions of the proposed and agency preferred routes because of constraints caused by steep slopes, soil chemistry limitations on plant growth, sparce precipitation, and excessive rockiness" (p.108, DEIS).

PR-27

Soils on the affected portion of the City watershed property, in addition to being on slopes in excess of 40%, are "stony, shallow soils....that cannot be routinely removed by trenching equipment encountered along the route" (pp.108-109, DEIS). In addition, the proposed Grand Mesa route is in contradiction to BLM planned management actions (BLM 1987c) to "ensure that no surface occupancy will be allowed on slopes greater than 40%" (p. 105, DEIS). The proposed and agency preferred route where it crosses steep slopes on the Grand Mesa is in contradiction to the aforementioned BLM planned management action.

The Final EIS should:

1. Provide specific, detailed information regarding the precautions and methods of construction that will be utilized to stabilize steep slopes and landslide areas.

PR-34

2. Describe in detail the precautions and methods of construction that will be utilized to protect the pipeline from breaks or ruptures where it crosses steep slopes and landslide areas.

PR-42

3. Describe in detail the potential for future landslides caused as a result of pipeline construction.

PR-35

4. GRAND JUNCTION WATER SUPPLY: The description of the Grand Junction water supply system, on page 106 of the DEIS, is inadequate as it does not accurately describe the portion of the City's watershed in the Whitewater Creek drainage basin. The DEIS fails to recognize that the City has acquired substantial water rights and landholdings in this drainage basin, and intends to

WA-01

utilize these water rights to supplement its present water supply in the Kannah Creek and North Fork of Kannah Creek drainage basins for future growth in the largest urban area in the Upper Colorado River basin. In addition, the proposed and agency preferred route would cross the Kannah Creek and Purdy Mesa water transmission pipelines, both of which provide domestic water to the City of Grand Junction and the Clifton Water District.

"The BLM has developed a planned management action for municipal watershed protection to limit surface-disturbing activities in the....Grand Junction municipal watersheds (BLM 1987c)" (p.105, DEIS). The proposed and agency preferred route where it crosses the Grand Junction municipal watersheds is in contradiction to the aforementioned BLM planned management action. PR-27

The Final EIS should provide more detailed and specific information regarding impacts to the Grand Junction municipal watersheds caused both during and after construction, including:

1. How will the pipeline intersect with the Kannah Creek and Purdy Mesa water transmission pipelines?;

2. What precautions will be implemented to protect these water transmission lines both during and after construction?;

PR-43 3. What precautions will be implemented to protect the gas pipeline from rupture in case of water transmission line rupture?;

4. Describe in detail the impacts caused by inflow of natural gas (caused by rupture) into these water transmission pipelines. This should include an evaluation of all of the consequences of this occurrence as it relates to the community's dependence on these water delivery systems;

WA-14 5. Will pipeline construction cause erosion and consequent sedimentation of Sink Creek, Whitewater Creek and their tributaries? To what degree?;

RE-03 6. If revegetation is only partially successful, would continued erosion affect hydrology and water quality of Sink Creek, Whitewater Creek and their tributaries?;

GE-14 7. What is the potential for uncontrolled wildfire caused by pipeline rupture, and what impact will this have on Sink Creek, Whitewater Creek and their tributaries?;

SO-06 8. How will landslides caused by pipeline construction affect Sink Creek, Whitewater Creek and their tributaries?;

WA-15 9. What constraints would the pipeline present to the City's ability to capture and deliver water from the Sink Creek and Whitewater Creek drainage basins to the Grand Junction urban area?

WA-16 10. The Draft EIS does not address site-specific impacts caused by construction or the long-term effects which have the potential of causing pollution to the Grand Junction municipal water supplies and supply system. The Final EIS should describe PU-02 the probability and potential for leaks, spills and ruptures where the same might result in water pollution and damage to treatment facilities.

WA-17 11. An evaluation of groundwater supplies and impacts to these supplies caused by construction.

5. MISCELLANEOUS:

RT-37 1. A site-specific discussion of pipeline crossings on the Grand Mesa slopes is required; the actual alignment keeps changing, and the Draft EIS describes only the general corridor;

RT-39 2. What provisions will be made for heavy equipment access and transport of pipe sections to higher elevations and steep slopes?;

RT-01 RT-12 3. The Final EIS should describe the pipeline route selection process: the City needs to know how and why the proposed and agency preferred route was selected;

RT-30 4. The Colorado River alternative, which TransColorado investigated, should be included in the Final EIS. This alternative should be evaluated and compared to the other alternatives evaluated in the Draft EIS; the Draft EIS makes no effort to rank the alternatives;

GE-16 5. The Final EIS needs to state whether any project impacts will be significant; specific mitigation measures should be proposed and described in detail in areas of significant impact;

VS-24 6. Evaluation of visual quality impacts should not be based solely on existing BLM and USFS resource management classifications;

RE-10 7. The Final EIS should provide detailed revegetation plans for natural grasses, cultivated fields, pinyon-juniper and sub-alpine zones;

WL-12 8. The Final EIS should evaluate the timing of construction as this needs to be compatible with snowmelt and spring runoff, wildlife migration, big game hunting seasons, and the movement of livestock to and from winter and summer grazing grounds.

GE-17 9. In all cases, unavoidable negative consequences should be addressed and fully described, including plans for mitigation;

PU-01 10. The Draft EIS does not adequately describe conditions under which the proposed high pressure gas pipeline could rupture, what the overall results of such a rupture would be, or plans as to how impacts would be addressed should ruptures occur;

GE-04 11. Short-term, construction related impacts have not been adequately addressed in the Draft EIS specifically for the property owned by the City of Grand Junction and the area encompassing the Grand Junction municipal watersheds. Ingress and egress, storage yards, transportation to the site of equipment and workers, fuel deposits, dust, use of City water for construction, etc. are not addressed in detail nor, as a result, are mitigation measures;

WA-18 12. The Draft EIS states: "Long term adverse impacts to the quantity and quality of water supplies are not anticipated." What is the technical basis for this statement? The Draft EIS also states: "TransColorado will take every precaution to minimize construction disturbance and to ensure that the natural watershed WA-19 and water pipelines are not impacted." What is meant by "every precaution", and where have these precautionary measures been proven to be effective?;

SC-09 13. What are the risks of secondary impacts from new drilling operations and laterals which might feed the pipeline?;

14. The firm of Camp, Dresser and McKee (CDM) provided a third party review of the Draft EIS on behalf of the City. The Memorandum Report prepared by CDM is attached hereto and hereby incorporated into this Resolution. Therefore, this Resolution and the attached Memorandum Report constitute the official comments of the City of Grand Junction on the Draft Environmental Impact Statement for the proposed TransColorado Gas Transmission Pipeline Project. Due to the highly public nature of this proposed project and the consequences its development could have on the Grand Valley public, the Final EIS should provide enough site-specific information to address the issues and answer the questions contained in the Resolution and the attached Memorandum Report.

PASSED and ADOPTED this 20th day of November, 1991.

Attest:

Teresa L. Martin
Deputy City Clerk

President of the Council

TRANSCOLORADO GAS TRANSMISSION PROJECT
THIRD PARTY REVIEW OF DRAFT ENVIRONMENTAL IMPACT STATEMENT
MEMORANDUM REPORT TO THE CITY OF GRAND JUNCTION, COLORADO
November 12, 1991

EXECUTIVE SUMMARY

Camp Dresser & McKee (CDM) has reviewed the Draft Environmental Impact Statement (Draft EIS) on the proposed TransColorado Gas Transmission Project. The City of Grand Junction wishes to provide critical input to the lead agency at this stage of the environmental review of the TransColorado project, pursuant to National Environmental Policy Act (NEPA) procedures. The purpose of CDM's review is to furnish comprehensive technical and procedural comments on the Draft EIS for the City's use in providing input to the lead agency.

CDM has focused on the segment of the proposed pipeline that would cross the Grand Mesa slopes, traversing the City-owned Somerville Ranch and affecting the public water supply watersheds of the City of Grand Junction and the Town of Palisade. As a decision-making public agency with respect to this project, the City is required by NEPA to take environmental considerations into its decision on whether to grant the pipeline easement. CDM's principal conclusion is that the Draft EIS does not provide enough site-specific analysis for the City to be able to assess the extent or significance of the environmental impact of the pipeline project on its watershed land. CDM also finds that the Draft EIS does not give adequate consideration to alternative pipeline routes or justify the proposed route.

CDM recommends that the City request of the lead agency, the

Bureau of Land Management, that the City be given cooperating agency status in the NEPA review to support its decision-making role in this project.

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INTRODUCTION

On behalf of the City of Grand Junction, Colorado, Camp Dresser & McKee Inc. (CDM) has reviewed the Draft Environmental Impact Statement on the proposed TransColorado Gas Transmission Project (the Project), prepared pursuant to the National Environmental Policy Act (NEPA). The Project involves a gas transmission pipeline proposed to be constructed partly through City-owned watershed land, known as the Somerville Ranch, located generally on the western slope of the Grand Mesa, and through adjacent watershed land owned by the Town of Palisade. The TransColorado would need a watershed permit from the City for the pipeline to cross the Somerville property.

The City provided substantial input to the scoping process in a letter of September 4, 1990, to the Bureau of Land Management (BLM), the lead agency. The City's letter discussed the importance of the Somerville Ranch as an aesthetic and water supply resource; requested information on the pipeline route selection process from the project sponsor, TransColorado; and proposed a variety of site-specific analyses for inclusion in the EIS to satisfy environmental concerns regarding, chiefly, water resources and aesthetics.

CDM finds, overall, that the the Draft EIS fails to substantively address many of the issues raised by the City during scoping. The Draft EIS includes certain attributes of a site-specific EIS within a basically programmatic environmental review of the Project. Little attention is given to the specific ecosystems and environmental effects of the Project along the pipeline route, especially in the area of Grand Mesa of concern to the City of Grand Junction. Figure 2-2, for example, illustrates the pipeline construction process programmatically: it gives a

general idea of how construction would progress, without any site-specific information.

GE-26 Although it presents certain quantitative data on project impacts, the Draft EIS does not fulfill the requirements of a site-specific NEPA EIS. For example, the Draft EIS states in Table 2-19 that:

> Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed would slightly increase soil erosion, and slightly decrease the permeability of the ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes."

WA-31 In this example, although a hard number is given for the area of disturbance, the vague statement of impact resulting from this disturbance is not supported by any background hydrogeologic information or by any analysis of how the disturbance would affect the existing hydrology of the watershed. The example is illustrative; throughout the Draft EIS, not enough site-specific detail is provided on the physical context of the Project to allow a meaningful evaluation of the significance of its environmental impacts. There is insufficient detail on the existing environment, and impacts are stated with little supporting analysis or evaluation. Even within the scope of a

GE-03 programmatic EIS, the Draft EIS does not adequately discuss the planning criteria and selection process that resulted in the proposed route, nor does it evaluate the proposed route and the available alternatives in comparison to one another.

This memorandum will review the kinds of information the EIS should provide to fulfill NEPA requirements, and suggest specific areas of environmental impact that the EIS should evaluate.

REQUIREMENTS OF NEPA

The basic purpose of a NEPA environmental review is to allow federal or cooperating agencies to incorporate environmental considerations into their decision-making. The environmental impact statement discloses all the reasonably forseeable environmental impacts of a proposed project, discusses reasonable alternatives to the proposed project, and sets forth feasible mitigation measures.

The lead agency and cooperating agencies are agencies that have discretionary regulatory authority over the project, or who have expertise to contribute in preparing environmental impact studies for the NEPA review. As the owner and manager of land affected by the proposed Project, the City of Grand Junction has both discretionary authority over the Project and special knowledge of the affected area. The City should therefore request cooperating agency status of BLM to ensure that the EIS meets the City's informational needs in considering whether to grant the pipeline easement.

A NEPA EIS must discuss the impacts of the project, meaning the direct and indirect effects the project will have on the existing environment, and evaluate their significance (40 CFR 1502.16). Significance is a function of the context and severity of the impact (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502 [b]). An EIS must also adequately describe the existing environment into which the project will be introduced: without sufficient detail on the existing environment, the significance of project impacts cannot be understood or evaluated. Reasonable and available mitigation measures must be provided where adverse impacts are determined to be significant.

This Draft EIS fails to describe the affected environment in site-specific detail. There is no discussion of the context or the severity of Project impacts, or any evaluation of their significance. The Draft EIS sets forth not a single site-specific measure to mitigate impacts. As a whole, the Draft EIS does not provide the City of Grand Junction with the information the City needs to take environmental considerations fully into its decision on whether to approve the proposed pipeline routing across the Somerville Ranch.

A linchpin of the NEPA environmental review is the discussion of alternatives. There are alternatives to any project as proposed, including doing nothing. NEPA requires that the alternatives be described comparatively, "thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public" (40 CFR 1502.14). An EIS should explore and objectively evaluate the most reasonable and practicable of possible alternatives, including both the proposed project and a no-action alternative. Alternatives that have been eliminated from consideration should be identified in the EIS with a brief explanation of the reasons for elimination. The EIS must "devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits" (40 CFR 1502.14 [b]).

GE-03

This Draft EIS does not provide the reviewer with a comparative discussion of alternatives. It does not "sharply define the issues" nor does it compare the alternatives so that reviewers can "evaluate their comparative merits." This Draft EIS fails to "devote substantial treatment" to all reasonable alternatives: the Draft EIS never identifies the specific alignment of the proposed route, illustrating only the general pipeline corridor.

RT-32

As Grand Junction and Palisade try to glean information from the Draft EIS, TransColorado is meanwhile busily offering various alignment alternatives to both municipalities, outside the NEPA review process, as if the NEPA review were irrevelant.

The process used to select the proposed route receives only the briefest mention in Chapter 1. The reviewer is not informed why this particular route, of all available alternatives, has been selected. On the basis of the information given in the Draft EIS, the route selection may have been an arbitrary decision.

RT-33

One routing alternative of interest to Grand Junction--the Grand Valley "variation"--is relegated to an appendix. Although some comparison of the Grand Valley variation with the proposed Project is provided, there is no effort to assimilate and analyze the many comparative advantages and disadvantages to provide "a clear basis for choice among options by the decision-maker and the public." A second reasonable routing alternative pertaining to Grand Junction's decision--the Colorado River alternative--is not presented at all in the Draft EIS, and the reasons for its exclusion are not discussed.

RT-35

The Draft EIS also neglects to present any other kinds of alternatives, such as an alternative right-of-way width, or using existing utility or transportation rights-of-way rather than establishing new ones. On the basis of this Draft EIS, the City is unable to evaluate the reasonableness of the selected alternative, i.e. the proposed Project.

RT-36

DESCRIPTION OF ALTERNATIVES INCLUDING THE PROPOSED ACTION

There are several problems with the description of the proposed Project and its alternatives, as presented in Chapter 2 of the

Draft EIS. These problems include the overly generic description of construction requirements, the minimal attention given to the pipeline corridor and route selection process, and the lack of any useful comparison of alternatives.

SC-06

PIPELINE SELECTION PROCESS

There are at least two phases in the process of locating a utility line such as the TransColorado Gas Transmission Project. The first phase locates the corridor, that is, the general route within which the line may be located. The specific alignment of the utility line is determined in the second phase. Although TransColorado has negotiated with some affected parties over the specific alignment of the pipeline, notably the Town of Palisade, only the corridor is identified in the Draft EIS. The specific alignment must be identified in the EIS if site-specific impacts are to be evaluated. Even within the limits of a programmatic EIS, however, the corridor selection process should be explained.

RT-37

Readers need to know the program requirements of the Project, and the criteria by which potential routes are identified and developed into alternatives.

RT-12

Corridor and alignment selection is, clearly, a complicated matter. The criteria include environmental constraints, construction and engineering constraints, the origin and destination of the gas product, the extent to which existing utility corridors can be utilized, and so on. The EIS should discuss these criteria, their relative priority, and the methodology used to apply them in developing alternatives and finally selecting the proposed route.

RT-33

Such a discussion is essential to the City of Grand Junction. The City must weigh the benefits of the proposed route against

its disadvantages in making a decision on the necessary easement. From the City's perspective, the disadvantages of the proposed route are obvious. Its only benefits, on the other hand, reside in the logic of the route selection process--which the Draft EIS fails to explain. Without a strongly reasoned justification for the proposed route, the City cannot be reasonably expected to make a balanced decision on the pipeline as proposed. The Draft EIS does not make the case for the proposed route.

COMPARISON OF ALTERNATIVES

GE-13 The proposed pipeline route and the various alternatives need to be presented in a more coherent and comparative format. The Draft EIS terms some alternatives as "variations" and discusses them only in Appendix B. It alludes to other alternatives having been eliminated or still being considered. Only some of these are mentioned; others, including the Colorado River-DeBeque Canyon alternative, are not. The alternative routes recommended by the federal agencies receive more thorough attention under the term "agency-preferred alternative." All the alternatives under consideration must be discussed. The alternatives selected for evaluation in the EIS must undergo an integral, comprehensive analysis, rather than discussing some within the body of the EIS and others in an appendix.

RT-33 Table B-2 compares the Grand Valley variation to the proposed route on 48 different environmental criteria. The proposed route is judged superior to the variation on some criteria, and inferior on others. The evaluation goes no further: there is no effort to order the priority of the criteria, or to account for conflicting criteria, or to explain the rules under which the alternatives are judged, or to add up the scores. Similarly, Table B-7 presents qualitative judgments on many different

RT-34 criteria in paired format, side by side--one set of judgments on the Grand Valley alternative, the other set on the proposed route. While it may be helpful to pair attributes in this fashion, no conclusion can be drawn because neither alternative is dominant across the range of criteria. The EIS needs to take the next step of giving the criteria weights and priorities, and devising a system to assign scores and determine rankings. The alternatives analysis must arrive at some objective basis for deciding which route is best.

RT-34 Multi-criteria evaluation is a quantitative, analytic method of organizing and evaluating hundreds of individual decision factors to reach a reasonable conclusion. Multi-criteria evaluation uses a matrix format and explicitly formulated criteria to evaluate a discrete number of alternatives, progressively eliminating less favorable alternatives to reach the most favorable one. Some form of multi-criteria evaluation should be applied to the TransColorado EIS.

DESCRIPTION OF THE PROPOSED PROJECT

RT-37 The material presented in Chapter 2 on construction requirements, sequencing, and methods is informative at the generic level. For the segment of the Project that would traverse the Grand Mesa slope, however, a more site-specific discussion is required.

Time for Construction

The Draft EIS states that anticipated pipeline installation will proceed at a rate of 1.4 miles per day. Pipe joints will be made by welding. Although pipe materials are not identified, it is assumed that the pipe material is steel. (Pipe coating and corrosion control stations are referenced also, which are part of

steel pipe installation, and are not needed for welded plastic pipe, for example.) Assuming 20-foot lengths of steel pipe, 1.4 miles of pipe per day will require the welding of approximately 370 joints per day, or nearly one joint every 1.5 minutes, assuming 10-hour work days as stated in the Draft EIS. Quality control inspection of the welded joints is of great concern at such a rapid construction schedule, and should be discussed in the EIS. It would seem prudent to include some specific weld integrity test (X-ray or other) considering the sensitivity and remoteness of much of the terrain in question.

PR-44

Note that Figure 2-2, page 35, presents a sketch of a "typical construction spread." Welding and coating operations are shown; inspection and quality control is not indicated. The difficulties implicit in keeping within a 75-foot construction easement on steep, fragile terrain such as the Grand Mesa slopes, while maintaining a 1.4 mile-per-day average construction schedule, demand greater scrutiny. The EIS should illustrate the construction spread designed specifically for the Grand Mesa slopes. Figure 2-2 is worthless as an illustration of how construction in this reach of the pipeline can be planned to avoid significant environmental impacts.

PR-44

Provisions for Construction Workers

The Draft EIS indicates that construction will be accomplished by three crews, or spreads, in 9 months (April to December, 1992.) Each construction crew will average 480 workers, with peak workforce levels of 550 workers, for a total of 1,140 to 1,680 workers. This number of people doing construction activity will, doubtless, have a severe impact on a 75-foot construction easement. Confining the activity of a 480 to 550 person "crew" to a 75-foot easement will be difficult.

PR-44

Given the size of the work crew, a major short-term concern is the provisions for construction workers. Some utility corridor projects have involved temporary encampments of work crews. Such encampments on the Somerville property could pose numerous problems for the ranch operations and hazards to the public water supply. The Draft EIS says that most workers will be housed in towns along the way, including Grand Junction, and transported by bus to the worksite. The specific provisions for workers should be thought through and discussed in the EIS.

PR-45

WL-13 Similarly, the EIS should consider the impact of construction of this proposed magnitude on the existing cattle ranching and in-season recreational hunting uses, which both occur on the Somerville property pursuant to leases from the City. The Project will require extensive construction staging areas, which should be located and described in the EIS.

Excavated Material

The pipeline will displace approximately 184,000 cubic yards of excavated material over its 300-mile length. Although it is often standard practice to grade and blend some material into the surrounding topography, typically some material also has to be hauled to an off-site point of disposal. The EIS must address the fate of the displaced excavated material, and describe the kind of material to be excavated. Given the steep slopes and very rocky soils, excavating quantities of rock and transporting it off-site, without tearing up stream beds and causing other environmental damage, will be difficult. The EIS should describe how the excavation and hauling of earth materials will be accomplished, including provisions for access roads, any cable hauling systems or other special transportion equipment, and all

PR-36

PR-36

the logistics involved.

Required Permits

It is stated on pages 35-37 that various rivers and streams would be crossed by the proposed pipeline and that the preliminary indication from the Corps of Engineers is that all crossings would be permitted under the Nationwide Permit System, precluding the need for individual Section 404 permits. Although the Corps typically indicates that a proposed crossing is covered by the Nationwide Permit System, the Corps also typically states that the permit applicant must review the Section 404 regulations and apply for an individual permit if one is required. The Corps reserves the right to revoke a Nationwide Permit during construction if, after visiting a construction site, the Corps inspector decides that an individual permit should be required. The burden is on the applicant to investigate the need for individual permits. It seems that more research by TransColorado is appropriate on this issue. The EIS should, at least, state which nationwide permits are anticipated, and show how the conditions specific to those permits can be met.

AU-12

TransColorado will be required to obtain an NPDES stormwater discharge permit for pipeline construction. This permit application requires detailed information on best management practices to control pollutants in stormwater discharges during construction, including a description of applicable state and local erosion and sediment control requirements, and proposed measures to control pollutants in stormwater discharges that occur after construction has been completed. The City will want to review this permit application in cooperation with the issuing agency, the Colorado Department of Health. Also, this important permit requirement should be listed together with other permits listed

AU-13

in Table 1-3 of the Draft EIS.

Pipeline Safety Provisions

It is stated on page 45 that block valves (line isolation valves?) would be installed at 20-mile intervals. Pressure changes would be monitored in Salt Lake City by telemetry. Upon detection of out-of-spec pressure changes, field crews could shut down manually-operated block valves within 0.5 to 1 hour. The EIS should explain how this optimistic response time would be achieved. If field crews were alerted in early morning hours to a break more than 20 miles away over rough four-wheel road, the response time might be considerably longer. Even assuming the time to isolate a 20-mile reach of pipeline is only 0.5 to 1 hour, and based on the carrying capacity of the pipeline stated in the Draft EIS of 300 million cubic feet of gas per day, the potential loss of gas at the stated rate is between 6 and 13 million cubic feet. This is an extremely dangerous potential hazard. CDM suggests considering automatic valves, more frequent spacing in ecologically sensitive watershed areas like the Grand Mesa slopes (perhaps 1-mile intervals), and an annual operation and maintenance program to make sure that all the block valves are in operating condition.

PR-46

PR-47

On steeper slopes (greater than 25 percent), groundwater piping can occur around the pipe within the air pockets in the backfill. Cutoff walls to prevent groundwater piping are not cited in the Draft EIS; these or other measures may be needed to prevent above-ground or below-ground watercourses from forming along the pipeline and undermining pipe stability. Such provisions should be discussed.

PR-37

PR-48 No indication is given that the pipeline will be protected at

stream crossings. Construction of sheetpiling, riprap, etc., should be a requirement for a high-pressure gasline, even if it is installed below the scour depth.

PR-48

CONFLICT WITH LAND MANAGEMENT POLICY AND PLANS

EXISTING POLICY AND PLANS

As reported in the Draft EIS, the proposed pipeline route would cross watersheds on the north and west sides of the Grand Mesa that supply water to Palisade, Grand Junction, and the Clifton Water District. The pipeline would cross BLM land as well as watershed land owned by the City of Grand Junction and the Town of Palisade. The Draft EIS briefly describes the Palisade and Grand Junction watersheds and water supply systems, and cites BLM's "planned management action" to "limit surface-disturbing activities in the Palisade and Grand Junction municipal watersheds," and to not allow surface occupancy on slopes greater than 40 percent.

BLM's Resource Management Plan for the Grand Junction Resource Management Area sets forth "planned management actions" in a series of subject areas, including water resources management, public utility management, and soils management. The planned management action for water resources is to limit surface-disturbing activity in the Palisade and Grand Junction municipal watersheds. This is noted in the Draft EIS. As shown in the Resource Management Plan (RMP), the area BLM designates as City of Grand Junction municipal watershed lies outside the proposed pipeline corridor, but the Town of Palisade watershed area is affected by the Project. Since the City's acquisition of the Somerville Ranch, however, the Grand Junction watershed is no longer limited to the area shown in the RMP. The Project affects

both Palisade and Grand Junction watershed land. The construction requirements of the Project appear to be inconsistent with this BLM management objective.

PR-27

As regards public utility management, the RMP designates the entire Grand Mesa slopes area as "sensitive for public utilities:" that is, utility routes should be "designed so as to protect resources of concern from undue damage." In the area of soils management, the RMP policy is for no surface occupancy on slopes exceeding 40 percent, and to allow other surface-disturbing activities only after analyzing site-specific conditions and the potential for safety hazards and reclamation. The Draft EIS does not present enough site-specific information to be able to determine whether slopes along the route in the Grand Mesa area exceed 40 percent, or to evaluate safety hazards.

SO-06

The EIS needs to present sufficient baseline data on slopes, soils, plant communities, and surface waters, and then evaluate the consistency of the proposed Project with BLM's published policies.

PR-27

The baseline section of the EIS should describe the Grand Junction and Palisade water supply systems in greater detail, identifying water supply sources; streams, ditches, flowlines, and other forms of conveyance; diversion structures; reservoirs; treatment facilities; yield, capacity, and end uses (e.g. percentage domestic vs. agricultural). The discussion of Grand Junction's water supply system should include the status and content of the City's proposed watershed management plan, and the City's plans and projections for future water supply development within the Somerville property.

SO-07

The City-owned Somerville Ranch is in active use as a beef cattle ranch under a ten-year lease that commenced in 1990. The lessee,

although receptive to the Project, has concerns about potential short- and long-term impacts. The potential impact of a construction crew of 480 to 550 persons descending on the ranch includes broken fences, lost cattle, and poaching and scaring away of wildlife. In the long term, the maintenance easement could open up the more rugged country within the ranch to inappropriate public recreational use, possibly resulting in personal injury and disruption of ranching operations.

FA-10
RE-10

The EIS needs to address the short- and long-term impacts of the Project on the ranch operations. The chapter on the affected environment should discuss the ranch--its acreage, layout, size of the herd, the lease provisions, and so on, as necessary to lay the basis for a meaningful discussion of impact. The chapter on impact and mitigation should consider and evaluate the potential impacts of laying the pipeline through the ranch. The timing of construction should be considered with regard to the seasonal movement of cattle from lower to higher elevations. Impact/mitigation issues would include control and supervision of the large construction crew, access of heavy equipment and personnel, repair of fences, maintenance of fences across the permanent easement, the effects of cattle and wildlife grazing on the effort to revegetate the easement, and the potential for creating a reacreational hazard.

FUTURE POLICY AND PLANS

The City of Grand Junction purchased the Somerville property in January, 1990, for its water rights in Whitewater Creek and to preserve the scenic values on the slope of the Grand Mesa. In 1991, BLM, together with the cities of Grand Junction and Palisade, U.S. Forest Service, Soil Conservation Service, Colorado Forest Service, Colorado Division of Wildlife, Mesa State

College, the Museum of Western Colorado, and private landowners, began discussing the idea of entering into a cooperative special area management plan for the Whitewater Creek drainage basin. The 50 square-mile target area includes the City's Somerville Ranch holding, the Palisade watershed, BLM and USFS land, and two private ranches.

BLM, in its initial project summary for the Grand Mesa Slope Special Management Area, writes:

> The area's most noteworthy feature is the dramatic, mile-high rise of the Grand Mesa as seen from the Grand Junction area. This higher country is a sensitive municipal watershed for both Grand Junction and Palisade. Recreational use of the area is increasing due to "back door" proximity to Grand Junction, the many miles of trails and roads that exist throughout the area, and the variety of interesting natural landscape, ecological, and cultural values present. About half of the area is important deer and elk habitat, and some of the foothills are already specially managed as critical big game winter range. Livestock grazing occurs throughout the area.

The proposed management plan would provide for recreation, conservation, livestock production, agricultural and municipal water use, and educational and scientific purposes. The parties met in September, 1991, to discuss the problems and uncertainties that the proposed management plan would address. These include trespassing, killing of livestock, illegal dumping, off-road vehicle use, the lack of marked trails in areas appropriate for public access, and the potential for piecemeal disposition of BLM and other holdings. The parties plan to use volunteer efforts in building trails, installing signs, and in providing technical and management support. As the effort builds, the parties hope to attract major financial support from foundations and trusts. A draft management plan for the area will be developed under BLM's

auspices by summer, 1992.

In BLM's Regional Management Plan, special management areas are given Class II visual quality protection, and share other restrictions on intrusive uses. The EIS should discuss the emerging special management area, exploring and evaluating the apparent conflicts between the proposed Project and the objectives of a special management area.

PR-27
SC-14

TERRESTRIAL ENVIRONMENT

"Special Construction Areas," page 35, indicates that the pipeline would cross active landslide areas on the Grand Mesa. It would seem prudent for a high-presure gas line to avoid identified active landslide areas completely. At least, the EIS should provide an illustration of identified landslide areas on the pipeline route. No indication is given as to how landslide areas will be crossed. Obviously, is is better to cross a landslide near its head than at the toe. Retaining structures to stabilize landslide crossings should be indicated. Although the Draft EIS mentions adjustment of pipe wall thickness, alignment, location of shutoff valves, and backfill density so as to allow slight pipe movement, no discussion is provided on how the pipeline would be designed to remain undamaged in an active landslide.

SO-09

REVEGETATION

It appears that revegetation is the major method proposed for erosion control. While an adequate method in many areas, revegetation may fail on the Grand Mesa slopes, where frequent steep slopes (greater than 25 percent), rocky ground, infertile soil, and cattle grazing will frustrate reseeding. Slopes great-

er than 25 percent usually do not vegetate well, even in the best of circumstances. These rocky, infertile soils will require amendment for revegetation to occur. Table 2-7 of the Draft EIS lists a number of generic revegetation measures to be employed as necessary. Although certain seed mixes are indicated in table D-1, the EIS should include a specific revegetation plan for the Grand Mesa area, taking into account the slopes, soils, and existing vegetative communities along the alignment. This revegetation plan should consider the times of year when seed can take route, and relate that to the construction scheduling. Assuming such analysis indicates that revegetation can succeed, the generic provisions listed in table 2-7 will be more convincing.

RE-03

This Draft EIS regularly uses qualitative terms such as "slightly" with no quantifying data backup (see table 2-19, Municipal Water Supply.) For a site-specific environmental review, numbers rather than relative terms such as "slightly" are necessary. The statement that "over the long term, wind and erosion losses would not be expected to exceed those presently occurring on adjacent, undisturbed soils," (table 2-19, Soils) is misleading, to say the least. This statement assumes ideal soil rehabilitation and revegetation conditions, which are unlikely. In any event, the Draft EIS does not review the specific vegetative growth conditions along the route, so the statement of no-impact lacks credibility.

SC-02
SO-10
RE-11

UTILITY AND STREAM CROSSINGS

The pipeline would cross the City's water supply flow lines. Although such utility crossings are often routine, more data on the pipeline crossings is encouraged, including discussion of induced current corrosion potential. The EIS should emphasize

PR-43 how potential damage to both the existing utlity, the proposed pipeline, and surrounding area, would be avoided or mitigated. The Draft EIS asserts in table 2-19 that construction work in riparian corridors will cause 1 to 5 days of increased suspended solids in the affected waterways. As a meaningful disclosure of environmental impact, this statement is inadequate. The EIS should treat the more important streams individually, providing an analytic basis for estimating sediment loading, stating the loading in quantitative terms, and then evaluating its significance--does the sediment loading cause a significant or only a minor impact? Perennial streams that are or may become water supply sources deserve analysis on an individual basis. Depending on the success of revegation, the Project could cause increased suspended solids on a recurring basis. Mitigation measures should be specified for streams where sediment loading could be significant.

WA-20

WETLANDS

The discussion of wetlands in Chapter 2 (page 107) does not adequately address all wetland types (regulated and non-regulated) that will be affected by the pipeline. General statements such as "wetland (hydric) soils have not been specifically categorized for western Colorado counties" should be supported by citations. A federal delineation of wetland areas along the proposed route should be required for this Project, using U.S. Army Corps of Engineers wetlands delineation methodology. The results of the wetlands delineation should be one basis for selecting the proposed route, since the first rule under Corps methods is wetlands avoidance.

WA-21

Appendix C-1 indicates several wetland crossings in the Grand Mesa area, including Sink Creek, Cottonwood Creek, Whitewater

Creek, and the Whitewater Creek flood plain. The text on page 107 mentions the wetlands function of reducing sediment loading in streams. Within the watershed areas on the Grand Mesa slopes, there would seem to be some potential for the Project, in disturbing wetlands, to harm this wetlands function and thereby cause increased sediment loading in existing or future water supply sources. No discussion of the acreage of wetlands that may be lost as a result of pipeline construction is provided, nor any evaluation of the significance of wetlands loss.

WA-22

The EIS should consider these and any other relevant wetlands issues. Without such site-specific analysis in the EIS, the City cannot evaluate the environmental impact of the Project.

WILDLIFE

Characteristically slight attention is accorded to wildlife. Regarding the discussion on page 115, the golden eagle is not the only non-endangered raptor nesting within one mile of the proposed routes. The Colorado Latilong Study (Colo. Division of Wildlife) indicates that the red-tailed hawk and the Swainson's hawk nest in the area of the proposed route. The EIS should evaluate the impact of the Project on these species.

WL-14

Regarding the discussion of threatened and endangered species on page 116, other threatened and endangered species that could be found along the proposed routes, including the spineless hedgehog cactus (Echinocerus triglochidiotus var. inermis) and the Mesa-verde cactus (Sclerocactus mesae-verdae), are not mentioned. It is stated here also that field clearances for the black-footed ferret will be conducted in the summer. Summer is not as good a season as late winter-early spring, when this species is more in evidence.

TE-12

TE-13

WL-15 In Chapter 3, the Draft EIS reports that the Project will have minimal impact on key ranges and winter ranges for big game. However, there is no discussion of the potential for cumulative impacts from other proposed projects or activities (e.g., logging, cattle grazing) in the pipeline corridor.

AESTHETIC RESOURCES

The evaluation of visual impact offered in the Draft EIS is based on the visual resource value classification systems of the Forest Service and BLM. In figure 3-8, the EIS reports the BLM classification of BLM lands on the slope of Grand Mesa to be Class III, for which the visual resource management (VRM) objective is:

> ...to partially retain the existing character of the landscape. Management activities may attract attention but should not dominate the view of the casual observer.

The Draft EIS concludes that the effect on the Grand Mesa is within the limits of the BLM management objective, and the visual impact is, therefore, moderate. The Class III designation does not appear to adequately represent the importance of the Mesa as a visual resource. The Draft EIS states that:

VS-19

> Areas designated as being of highest visual value, or highly sensitive from a visibility standpoint, include the following. At the very northern end of the project area, a 3-mile segment along Piceance Creek has been designated as being of high value. Similarly, the 2,000-foot escarpment along the Roan Cliffs (north of Debeque) are both scenic and sensitive. A unique rock formation exists near Black Mountain. The western face of the Grand Mesa forms a scenic focal point for the Grand Valley and is, therefore, highly sensitive. Further to the south, Roubideau Creek has been designated as high landscape value by the BLM. [Emphasis added.] (p.120)

The sense of this paragraph is that the Grand Mesa slope is one of only a handful of locations along the entire 300-mile route that stand out as places of unusual scenic value--which, indeed, it is. The residents of the Grand Valley have always looked to the Grand Mesa as a symbol of the community. The massive, folded slope of the Grand Mesa rises prominently on the eastern horizon, capped by its great mantle of basalt. The pinyon and juniper forest that carpets much of the slope beneath the basalt layer gives the Grand Mesa's middle story a deep green color that contrasts with the arid Bookcliffs across the valley. The Mesa is symbolic not only for its visual prominence, but also for the abundance of water in the numerous streams and 300 lakes and reservoirs across its surface. These water resources have long provided famous recreational fishing and are the major source of potable and irrigation water to the communities of the Grand Valley. As such, the potential effects of the pipeline on the Grand Mesa slope merits special consideration in the EIS.

PR-42
PR-34
SC-01

The other locations cited in the passage quoted above have Class II VRM designations, for which "the objective...is to retain the existing character of the landscape. Management activities may be seen, but should not attract the attention of the casual observer." BLM staff in the Grand Junction regional office indicated that, in their view, the Grand Mesa slopes should have been designated Class II in the 1987 Resource Management Plan, but were not because of an arbitrary decision by then Area Manager Forest W. Littrell[1].

[1] Graham, Joann and Wade Johnson, Bureau of Land Management, Grand Junction, Colo. Personal communication. 24 October 1991.

CDM
environmental engineers, scientists
planners & management consultants

TRANSCOLORADO GAS [illegible]MISSION PIPELINE
REVIEW OF [illegible]S

Plate 1
Photographed October 1991

CDM
environmental engineers, scientists
planners & management consultants

TRANSCOLORADO GAS TRANSMISSION PIPELINE
REVIEW OF DRAFT EIS

Plate 2
Photographed October 1991

CDM
environmental engineers, scientists
planners & management consultants

TRANSCOLORADO GAS TRANSMISSION PIPELINE
REVIEW OF DRAFT EIS

Plate 3
Photographed October 1991

Note: Original copy quality not sufficient for adequate reproduction.

Index No. 87

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BOARD OF
Mesa County Commissioners

750 Main Street
P.O. Box 20,000-5012
Grand Junction, Colorado
81502-5010

John M. Leane
District No. 1
(303) 244-1605

Jim Spehar
District No. 2
(303) 244-1604

Doralyn B. Genova
District No. 3
(303) 244-1606

21 November 1991

Mr. Chuck Finch, Project Manager
Bureau of Land Management
2465 S. Townsend Ave.
Montrose, CO 81401

RE: Draft Environmental Impact Statement for
TransColorado Gas Transmission Project

Dear Mr. Finch:

Thank you for the opportunity to comment on the TransColorado Draft Environmental Impact Statement (DEIS). We appreciate the extension of time granted to review the document and offer this letter as our comments on the DEIS.

Mesa County recognizes the vast and valuable natural gas resource here in northwestern Colorado and the potential need to transport the gas to the marketplace. Natural gas is a relatively clean energy source and will certainly play an important role in our future. We are committed to working with all parties involved to ensure the resource is utilized in a manner which has the least negative impact on the residents and environment of Mesa County.

RT-35 The two alternative routes proposed in the DEIS in Mesa County are not given equal treatment in terms of analysis. The Grand Valley variation is relegated to an appendix in the DEIS and apparently is not given serious consideration by your agency.

SC-05 We feel the level of detail provided in the DEIS analysis of alternatives is inadequate to allow us to support either variation. The proposed route across the western slopes of the Grand Mesa includes multiple constraints which we feel were not studied in detail, e. g. visual impacts, landslide potential, drainage crossings, areas sensitive to revegetation success, municipal watersheds, etc. These potential impacts are addressed in a very general fashion throughout the DEIS. As a result, the suggested mitigation measures also are inadequately described.

AL-09 We also believe a full range of alternatives has not been addressed in the DEIS as required by the National Environment Protection Act. The project proponent's cursory review of a third route, the Kelso or DeBeque Canyon route, in a letter to you dated April 17, 1991 is referenced in the DEIS as

RT-31 justification for eliminating this route from detailed analysis. We find this justification insufficient and recommend the Final EIS (FEIS) fully analyze this and any other routes through Mesa County, which may constitute a full range of alternatives. These alternatives should be given equal treatment in the FEIS and compared in the body of the document.

We had hoped to incorporate our Conditional Use Permit process into your formal DEIS comment process; however, the TransColorado Transmission Company withdrew their application for a Mesa County Conditional Use Permit (CUP) for this project after we had solicited comments from a number of review agencies. We request the enclosed copies of those comments be incorporated into our comments by reference. Please note that the CUP application included more alternative routes than the DEIS considers, and the review comments we received reflect this inconsistency.

Our staff has reviewed a third party study of the DEIS conducted by Camp Dresser & McKee for the City of Grand Junction dated November 12, 1991. We concur with the findings and recommendations of the study and strongly endorse the same. In short, the DEIS inadequately addresses site-specific impacts and does not consider a full range of routes to justify the proposed route.

Thank you again for the opportunity to comment on the DEIS. We look forward to reviewing a Final EIS. A project of such magnitude and potential impact, both positive and negative, to Mesa County and western Colorado demands the most thorough analysis possible as required by NEPA.

Sincerely,

Doralyn Genova
Chairman

John Leane
Commissioner

Jim Spehar
Commissioner

pc: Federal Energy Regulatory Commission
Senator Tim Wirth
Senator Hank Brown
Representative Ben Nighthorse Campbell
TransColorado Gas Transmission Company
State Senator Tilman Bishop
Representative Dan Grinster
Representative Tim Foster
Governor Roy Romer
Mesa County Planning Commission
Grand Junction City Council
Palisade Town Council

STATE OF COLORADO

ROY R. ROMER
GOVERNOR

JOHN W. ROLD
DIRECTOR

COLORADO GEOLOGICAL SURVEY
DEPARTMENT OF NATURAL RESOURCES
715 STATE CENTENNIAL BUILDING — 1313 SHERMAN STREET
DENVER, COLORADO 80203 PHONE (303) 866-2611

RECEIVED
OCT 10 1991
MESA COUNTY
PLANNING DEPARTMENT

October 8, 1991

Mesa County Planning Department
P. O. Box 20,000-5022
Grand Junction, CO 81502

MA-92-0005

RE: TransColorado Natural Gas Transmission Pipeline

Dear Department Members:

We have reviewed the application report for a conditional use permit for this pipeline. The report covers several physiographic topics from erosion to landslides. However, we cannot approve this application without a detailed study of the area.

The report covers geological hazards in a brief manner. On page no. 49, the geology considers engineering aspects only and landslide zones as if they can be mitigated for the 13 miles of potential movement. This can only be determined after the slope stability analysis has been conducted. No aerial photos were delivered to our office for review.

A detailed landslide slope stability analysis should be conducted. Certain details as grade, water table, water impoundment, slip planes, and inclinometer movement should be provided before a geologic hazards review can be accomplished. Thirteen miles of potential landslide may not be moving, but should be given a degree of confidence.

Proper drainage systems should be installed as well. On page 54, several springs occur on the hillside over old landslide deposits. The water table should be stabilized in the vicinity of any landslide zone.

If you have any questions concerning this review or need further assistance with the geologic review, please contact us at 866-2611 in Denver.

Sincerely,

Jeffrey L. Haynes
for

Christopher J. Carroll
Engineering Geologist

MESA COUNTY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING AND DESIGN
DEVELOPMENT REVIEW COMMENTS

MCPC FILE NUMBER: C 13-91
PHASE: Conditional Use Permit
PROJECT NAME: TransColorado Natural Gas Transmission Pipeline
COMMON LOCATION: Mesa County
PETITIONER: TransColorado Gas Transmission Company
MCPC HEARING DATE: 09/19/91
BOCC HEARING DATE: 10/08/91
DUE DATE: 09/18/91

THE FOLLOWING HAS BEEN REVIEWED BY: Jaci Gould, P.E.
DATE OF REVIEW: August 29, 1991

ENGINEERING REVIEW COMMENTS:

1. The information contained in the application proposal was complete for our review purposes. Conditions as proposed in this package will be enforced as they relate to County enforced items. Except where items proposed are less than standard, then the minimum County standard will apply.

2. Utility cuts in County right-of-way will be performed after obtaining the proper permits. Specific conditions of those permits will prevail over the general conditions as outlined in the application proposal.

   Due to the unstable nature of the soils in the areas proposed for the pipeline, and the extensive nature of work proposed, a full time County inspector may be required as a condition of the issuance of any utility permits associated with this conditional use. The applicant will be responsible for reimbursing the expense of keeping the County inspector on-site during any construction occurring in County right-of-way.

   Of special concern to us is the unstable soils associated with 45.5 Road. This soil contains mud seams which have a tendency to heave when un-stabilized. Any blasting can cause these mud seams to heave even if the blasting is in the proximity of 45.5 Road and not necessarily within 45.5 Road right-of-way. These soil conditions must be carefully monitored by a full time on-site County inspector to help minimize damage to County roads.

   Section 16.4 in the application describes the compaction techniques which are to be utilized. These techniques are not acceptable for utility construction within Mesa County right-of-way. Compaction of utility trenches in County right-of-way will be performed to County standards.

3. Exhibit "C" shows the pipeline under the road section with a minimum of 5 inches of cover. Mesa County Standards require a minimum of 24 inches of cover.

4. Access permits will be required if any new access off of County roads are utilized to support the construction activities associated with the pipeline construction. These may be obtained from the Mesa County Division of Engineering and Design.

5. Oversize and overweight vehicles must obtain permits for using County roads. Annual permits are available for each power unit. The County reserves the right to restrict these vehicles from County roads during wet conditions.

   Section 16.2 of the TransColorado pipeline application require construction activities to be discontinued if construction equipment creates 4 inch deep ruts. This is not acceptable for equipment utilizing County Roads. If soil conditions are such that they will not support loads then construction activity will discontinue until conditions improve. This mainly applies to the use of County Roads by oversize and overweight vehicles.

FLOODPLAIN REVIEW COMMENTS:

1. Floodplain permits will be required for each stream crossing. If the typical cross-section of the stream is modified proper hydraulic and hydrological analysis will be required as part of the floodplain application submittal.

RIVERFRONT COMMISSION
P.O. Box 2477
Grand Junction, Colorado 81502

RECEIVED
SEP 11 1991
MESA COUNTY
PLANNING DEPARTMENT

Co-Chairmen:
William M. Ela
James M. Robb

Members:
Harold Elam
Rebecca Frank
Bill Graham
Pat Gormley
Chris Iourlas
Brian Mahoney
Jane Quimby
Ward Scott
Helen Traylor

Ex-Officio Members:
Doralyn B. Genova,
Mesa County Commissioner
Reford C. Theobold, *Member*
Grand Junction City Council
Debbie Allen
Town of Palisade
Robert Hueftwine
Town of Fruita
Tilman M. Bishop
Colorado State Senator

September 10, 1991

County Commissioners of Mesa County
750 Main Street
Grand Junction, CO 81501

Dear Commissioners:

We have been invited to comment on the permit request of TransColorado Natural gas Transmission Pipeline for pipeline construction across Mesa County. The two alternatives proposed by the applicant only cross the Colorado River and do not effect any substantial riverfront area. Accordingly, we take no position on those alternatives.

However, we are aware of a third possibility which route might parallel the Colorado River and I-70 through parts of the DeBeque Canyon. We believe it was considered in the EIS study and has a lot of advantages in our view. A route within the outer limit of the I-70 right-of-way would provide a sufficient base for the trail that eventually will travel through DeBeque Canyon as a crucial link in the East-West statewide trail system already in Colorado legislation and under Congressional study. After your Planning Department and Planning Commission have made their studies we hope this possibility will be given the strongest consideration. We would like to be quite involved at that time.

Respectfully,

William M. Ela

William M. Ela
Co-Chairman

WME:dkr

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

The attached application has been sent to your office for your review and comments.

**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C13-91
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, Co. 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
County Road Dept.	Is proposal within service area?		
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

Other concerns and specific requirements:

See attached sheet

++PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS++

Reviewing Office:
Reviewed by: Date:

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 12 1991
MESA COUNTY
PLANNING DEPARTMENT

The attached application has been sent to your office for your review and comments.

**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

9-12-91

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C1391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, CO. 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
Town of DeBeque	Is proposal within service area?	X	
	Existing services adequate?	X	
	Connection to services required?		X
	Easements required?		X
	Relocation necessary?		X
	Improvements agreement adequate?	X	
	As-builts required for release?		X
	Financing required for extensions?		X

Impact on capacity or supply:

Other concerns and specific requirements:

There is a water main on 44 Rd and on 45½ Rd along the De Beque cut-off so the Town of De Beque would like to be notified to show Transcolorado Gas Transmission Co. the exact location of the water main when they are working in those two locations.

***PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS**

Reviewing Office: Mayor's Office + Town Board
Reviewed by: [signature] Date: 9-10-91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 10 1991
MESA COUNTY
PLANNING DEPARTMENT

The attached application has been sent to your office for your review and comments.

**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C1391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, CO. 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
G.V. Rural Power	Is proposal within service area?	✓	
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?	✓	
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

Other concerns and specific requirements:

GVP is concerned about the relocation of distribution pole lines N. DeBeque, DeBeque cutoff etc to maintain the Colorado State Law working clearance of 10'-0". GVP requires a minimum of 15'-0" (Horizontal & Vertical) To Trucking equipment, cranes, etc.

GVP needs (1) month advance notice to review site specific plans of location of pipeline versus actual field clearances to lines.

***PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS**

Reviewing Office: Grand Valley Power
Reviewed by: Chuck Nitsch Date: 9/9/91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 06 1991
MESA COUNTY
PLANNING DEPARTMENT

The attached application has been sent to your office for your review and comments.

**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C1391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, CO. 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
Clifton Fire	Is proposal within service area?		
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

Other concerns and specific requirements:

NO CONCERNS

***PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS**

Reviewing Office: Clifton Fire District
Reviewed by: Donna M. Austin Date: 9-5-91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 18 1991
MESA COUNTY
PLANNING DEPARTMENT

The attached application has been sent to your office for your review and comments.

**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C1391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, CO. 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
Ute Water	Is proposal within service area?		
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

NONE

Other concerns and specific requirements:

SUGGESTIONS AND CONCERNS PREVIOUSLY TRANSMITTED DIRECTLY TO TRANSCOLO GAS, HAVE NOT BEEN ADDRESSED.

NO OBJECTIONS TO THE CONCEPT OR METHOD OF CONSTRUCTION.

***PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS**

Reviewing Office: Ute Water
Reviewed by: Gary R. Mathews Date: 9-18-91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

TO: KEITH FIFE

FROM: TERRY SOMMERFELD

DATE: 9-17-91

SUBJECT: TRANSCOLORADO GAS LINE

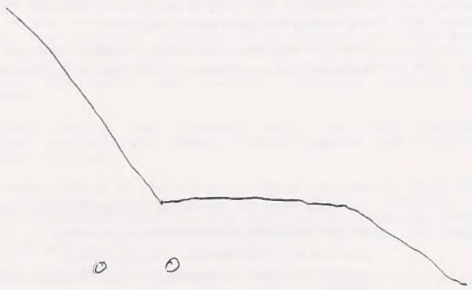
After reviewing the application for conditional use permit several general areas of construction are not covered.

1. The document showe cross sections of road crossings but does not show how conditions will be handled when gas line is under the existing roadway.
Need minimum depth of pipe
Backfill material in roadway
Need compaction requirements - not wheel rolling
Depth of gravel under paving
Will paving be saw cut
Type of paving used for replacement 3"
How soon after will hot mix be placed

2. Tracked equipment should not be used on paved roads without bond.

3. Construction activity should not take place on gravel or paved roads using the 4" rut as a guide for adequate surface support.

4> Special consideration needs to be given to road needs at staging areas. Need to protect road at on-off areas.



MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 16 1991
MESA COUNTY
PLANNING DEPARTMENT

The attached application has been sent to your office for your review and comments.

**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C-1391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 540
Denver, Co 80201
Phone: (303) 294-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
M.J. Dransage	Is proposal within service area?		
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

THE PIPELINE (ONCE BACKFILLED) SHOULD NOT CAUSE MEASUREABLE IMPACT ON THE CAPACITY OF THE DRAINAGE DISTRICT'S SYSTEM UNLESS THE GRAND VALLEY ALTERNATE ALONG 33⅛ AND 34 ROAD IS CHOSEN AND CARE IS NOT TAKEN DURING CONSTRUCTION. ALTERNATE 2 IS ALSO A POTENTIAL PROBLEM. ALONG 33⅛ AND 34 ROADS THERE WOULD BE 6 DRAIN CROSSINGS AND THE PARALLELING OF AT LEAST 2 MAIN DRAINS. THE ROUTE OF ALT 2 WOULD INVOLVE CROSSING 9 DRAINS.

Other concerns and specific requirements:

1. NO ABOVE GROUND FACILITIES IN DRAINAGE DISTRICT RIGHTS-OF-WAY
2. PULLMIN DESIGN FOR MAJOR RIVER/STREAM CROSSINGS WHEN CROSSING OPEN DRAIN DITCHES
3. REQUIRE ONLY OWNER OF THE LAND CAN GRANT EASEMENTS FOR THE PIPELINE. GOOD FOR THE DURATION EASEMENT.

+++PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS++)

Reviewing Office: Grand Jct. Drainage Dist. P.O. Box 51248 Grand Junction, CO 81505 303-242-4343

Reviewed by: John L. Ballard Date: Sep 13, 1991

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 20 1991
MESA COUNTY
PLANNING DEPARTMENT

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**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C-1391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 540
Denver, Co 80201
Phone: (303) 294-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
County Health	Is proposal within service area?		
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

Other concerns and specific requirements:

An Air Pollution Emission Notice (APEN) shall be submitted to the Air Pollution Control Division of the Colorado Department of Health. (re: fugitive dust emissions) MCHD/9-19-91

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PLANNING DEPARTMENT

+++PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS++

Reviewing Office: Mesa County Health Dept

Reviewed by: Date: 9-19-91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

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SEP 06 1991
MESA COUNTY
PLANNING DEPARTMENT

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**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C-1391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 540
Denver, Co 80201
Phone: (303) 294-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
Clifton Water	Is proposal within service area?	✓	
	Existing services adequate?		
	Connection to services required?	✓	
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:
NONE

Other concerns and specific requirements:

September 5, 1991

The Clifton Water District has a 16" high pressure line that traverses what appears to be the alignment of the Grand Valley Alternate from I-70 on the north to our treatment plant on the south (34 & E Roads). The Clifton Water District also has a low pressure 24" line on 34 Road from the Grand Valley Canal to the treatment plant.

In addition, the Clifton Water District has a high pressure 27" steel pipeline running west from the treatment plant along the E Road alignment to 32 Road. Clifton would have to have assurances that the cathodic protection on the 27" diameter high pressure line would not be interfered with by the cathodic protection on the TransColorado pipeline.

Plus other concerns about the Grand Valley Alternate, Alternate A-2 and Alternate A-3 that cannot be addressed without more specific information. These three alternates could interfere with our raw water collection system and water treatment facilities.

+++PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS++

Reviewing Office: CLIFTON WATER DIST.

Reviewed by: Date: 9-5-91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 16 1991
MESA COUNTY
PLANNING DEPARTMENT

The attached application has been sent to your office for your review and comments.

**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C/391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, Co 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
Public Service	Is proposal within service area?		
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

Other concerns and specific requirements:

GAS & ELECTRIC: No objections to conditional use. C.E. 9/4/91

Transmission Engineer: Contractor needs to notify Transmissions Lines - John Carlson (303) 273-4684 48 hrs. in advance before doing any construction activities under our transmission lines. D. Pearson 9/10/91

+++PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS++

Reviewing Office: Public Service Company of Colorado
Reviewed by: Carl Counton Date: 9/11/91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 16 1991
MESA COUNTY
PLANNING DEPARTMENT

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**PLEASE RETURN YOUR COMMENTS BY ONE WEEK BEFORE THE MCPC HEARING DATE BELOW.

MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C/391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, Co 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
State Highways	Is proposal within service area?		
	Existing services adequate?		
	Connection to services required?		
	Easements required?		
	Relocation necessary?		
	Improvements agreement adequate?		
	As-builts required for release?		
	Financing required for extensions?		

Impact on capacity or supply:

Other concerns and specific requirements:

Permits will be required before any work takes place within highway right-of-way.

All crossings of highways must be bored.

Support the mesa route; do not support the DeBeque Canyon route.

Reviewed by Rich Pernke, Jim Hall, Willis Spanicek, and Chuck Dunn.

+++PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS++

Reviewing Office: DOT Engineering
Reviewed by: See Above Date: 9-13-91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

MESA COUNTY REVIEW SHEET

Mesa County Planning Department
P.O. Box 20,000-5022
Grand Junction, Colo 81502-5022

RECEIVED
SEP 10 1991
MESA COUNTY
PLANNING DEPARTMENT

The attached application has been sent to your office for your review and comments.

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MCPC Hearing Date: 9-19-91 MCC Hearing Date: 10-8-91
File Number: C/391
Project Name: TransColorado Natural Gas Transmission Pipeline
Phase: Conditional Use Permit
Common Location: See Attached

Engineer - Name:
Address:
Phone:

Petitioner - Name: TransColorado Gas Transmission Company
Address: P.O. Box 840
Denver, Co 80201
Phone: (303) 291-3773

REVIEW AGENCY	REVIEW AGENCY COMMENTS (PLEASE TYPE)	Yes	No
Walker Field Airport Auth.	Is proposal within service area?		X
	Existing services adequate?	X	
	Connection to services required?		X
	Easements required?		X
	Relocation necessary?		X
	Improvements agreement adequate?	X	
	As-builts required for release?		X
	Financing required for extensions?		X

Impact on capacity or supply: None

Other concerns and specific requirements:

The Grand Valley alternate is just to the north of land protected by the BLM for future airport development. As planned there is no impact on the airport; but any movement to the south would encroach on this protected area.

+++PLEASE REFER TO "GUIDELINES FOR REVIEW AGENCY COMMENTS" FOR SPECIFICS++

Reviewing Office: WALKER FIELD AIRPORT
Reviewed by: [signature] Airport Manager Date: 9/6/91

FAILURE TO OBJECT OR COMMENT BY 9-18-91 SHALL CONSTITUTE APPROVAL BY YOUR OFFICE.

GARFIELD COUNTY
PLANNING DEPARTMENT

November 21, 1991

Chuck Finch, Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, CO 81401

RE: Draft Environmental Impact Statement - Transcolorado Project

Dear Mr. Finch:

We appreciate the opportunity to comment on the draft Environmental Impact Statement (DEIS) for the Transcolorado Gas Transmission Project. It is our hope that the following concerns and comments will be incorporated into the Final Environmental Impact Statement. Our comments will be twofold, addressing the document as a whole and specific issues within the document.

In reviewing the draft document, it seems the treatment is too general and lacks any high degree of specificity. With the exception of special treatment for a few geographical areas, the document is unusually broad and vague. This is particularly true in the descriptions of the affected environment and environmental consequences. Relative to the complaint, it is difficult to identify the routing. Mapping at a larger scale would be beneficial to more accurately assess the impacts of the proposed alignments.

GE-21

While it was decided after the scoping sessions that analysis of coal bed methane development was not germane for inclusion in the DEIS, we are concerned that this document does not address and quantify the spin-off effects of a project of this magnitude. These impacts might include additional well development, socio-economic and environmental issues. Again, we hope that in future projects, the direct and indirect regional impacts would be considered.

SC-03

More specifically, our concerns with the DEIS include water resources, agricultural lands, visual impacts and threatened and endangered species.

The document fails to adequately address impacts on water resources for construction, reclamation and hydrostatic testing. While Table 2-2 addresses some possible sources for water for hydrostatic testing, it does not adequately address physical and legal water supply for all aspects of the project.

WA-25

The DEIS does not satisfactorily address impacts on agricultural lands. While frequently cited, specific locations of prime and unique farmlands are not identified. In addition, the DEIS does not address farmlands of lesser quality than prime and unique

FA-11

status. The general protection measures do not address irrigation ditch crossing and protection measures.

EN-09

The DEIS identifies several candidate threatened and endangered plant species along the proposed alignment within Garfield County. The protection and/or mitigation of impacts of these species is not adequately addressed. The statement that "it is unclear at this time if avoidance of these plants would be possible" (in reference to the Debeque phacelia) is indicative that further information is required.

TE-14

Finally, our staff is concerned about the potential for the negative visual impacts of the pipeline north of Debeque. On page 120 (Chapter 3 - Affected Environment), the DEIS describes the Roan Cliffs area as being of "highest visual value" and both "scenic and sensitive". Indeed, this area is highly visible and valuable as it is visible from the I-70 corridor and surrounding residential areas. Roan Cliffs are identified as Class II VRM however Figure 4-1 identifies this area as subject to "high" visual impacts, where "visual contrast exceeds management objectives". This conflict presents significant concerns.

VS-27

Also, Transcolorado representatives have indicated that the pipeline would be located above ground at this point. At no point in the DEIS that we could find, does it address the above-ground line and its associated disturbances. Hopefully, the Final EIS will specifically define the impacts and mitigation measures for this portion of the alignment in an adequate fashion.

PR-50

Again, we appreciate the opportunity to comment on this document.

Sincerely,

Andrew C. MacGregor
Planner

109 8TH STREET, SUITE 303 945-8212 / 625-5671 GLENWOOD SPRINGS, COLORADO 81601

Index No. 89

89

TRANSCOLORADO
GAS TRANSMISSION COMPANY

November 21, 1991

COMMENTS OF
TRANSCOLORADO GAS TRANSMISSION COMPANY
ON
DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR
TRANSCOLORADO GAS TRANSMISSION PROJECT

Mr. Chuck Finch
Project Manager
Bureau of Land Management
2465 South Townsend Avenue
Montrose, Colorado 81401

RE: TransColorado Gas Transmission Project
Draft Environmental Impact Statement

Dear Mr. Finch:

TransColorado Gas Transmission Company (TransColorado) hereby submits its comments on the Draft Environmental Impact Statement (DEIS) on the TransColorado Gas Transmission Project. TransColorado believes that the DEIS is basically a complete analysis of the environmental impacts of the proposed pipeline. Although TransColorado's comments reflect disagreements with some of the information and conclusions presented in the DEIS, TransColorado's purpose in submitting these comments is to assist in improving the environmental impact statement.

TransColorado appreciates the opportunity to review and comment on this draft document. If you have any questions regarding the comments, please contact Dave Flaim at (801) 530-2522.

Sincerely,

David C. Flaim
for Curt Dallinger
Project Manager

Attachment

cc: Joann Graham - BLM
Miles Weaver - USFS
Scott Ellis - ENSR

MAILING ADDRESS
POST OFFICE BOX 281304
LAKEWOOD, COLORADO 80228-9304

PHONE (303) 989-2560
FAX (303) 980-9044

STREET ADDRESS
12055 W. 2ND PLACE
LAKEWOOD, COLORADO 80228-15

GENERAL COMMENTS

RT-20

In the "Summary Section", especially under the heading "Route Alternatives", the agency fails to present a clear discussion on the impact differences between TransColorado's proposed action and the agency-preferred route. The current analysis described in this document for the Mancos valley area and the Norwood area fails to present a non-biased and balanced basis for agency action through the Record of Decision.

TR-04

The DEIS addresses the "trust" role of the Federal Agencies in dealing with tribal property rights in both the Summary and Chapter One text. During scoping, the Southern Ute Tribe expressed concern regarding potential Tribal economic effects due to competing supplies of natural gas carried on the TransColorado system. This is an issue which deals with the interstate natural gas commodity market, competition and gas pricing, rather than Tribal lands.

The issues raised by the Southern Utes traditional commercial issues that every natural gas producer must address in order to deal with the commodity markets under which natural gas is bought and sold. If mitigation of the TransColorado system's economic impact on the Southern Ute gas sales is found as a matter of law to be mandated under the auspices of the "trust responsibility" cited in the DEIS, or under NEPA generally, then such mitigation must be administered under the jurisdiction and expertise of the Federal Energy Regulatory Commission ("FERC").

TR-04

FERC is the federal agency charged with substantive regulation of the interstate commerce for natural gas. This forum would provide the appropriate vehicle for the Southern Ute Tribe, or any other gas producers, to intervene regarding gas pricing and markets. More importantly, TransColorado notes that to the extent the BLM has, as a matter of law, any "Trust Responsibility," it will have fulfilled the trust obligations by following NEPA, its regulations and guidelines in approving the pipeline route.

NO ACTION ALTERNATIVE

The DEIS indicates that under a "No Action Alternative," (which examines the scenario whereby the TransColorado system is not constructed), the BLM postulates that, due to existing and future energy development activity in the region, a surrogate system would most likely result. In the words of the EIS:

> "It is anticipated that an alternative pipeline proposal would be presented to permitting agencies if the TransColorado Pipeline is not built. Future demand for natural gas is subject to many factors . . . It is expected that the shut-in natural gas production capacity, combined with incentives from the federal non-conventional energy program, would stimulate a proposal similar to that of TransColorado's or a pipeline system that would take gas from a portion of the TransColorado's proposed service area." (DEIS, Chapter 2, page 90)

AU-11

This analysis of the "No Action Alternative" is one that TransColorado certainly agrees with. However, the analysis fails to articulate several key points. The federal government has already committed much of TransColorado's proposed service area to oil & gas leasing and production. Many existing natural gas wells are shut in, waiting for access to markets due to a shortage of pipeline capacity and transportation. Through the years, federal agencies have already made a significant commitment of public resources along the TransColorado proposed route by allowing and promoting natural gas production of federal lands directly, and private lands indirectly through various incentives.

The federal policy over the years to promote development of natural gas production in the region by granting federal leases, and deriving income from the royalties that result, carries with it the implication that such primary production activity could, and most probably would, provide the basis for an infrastructure that includes projects such as the TransColorado system. The agency decision to promulgate the existence of the TransColorado (or an identical pipeline system) was truly made when development of federally controlled natural gas in this region began many years ago. The construction of a pipeline system such as that proposed by TransColorado is the next logical economic step in this process to develop both private and federally sanctioned natural gas production in the region. The "No-Action Alternative" analysis

AU-11

fails to address the issue that the agencies have already committed significant federal resources to natural gas production, and this project is essentially the infrastructure "predestined" to support such regional natural gas production.

AIR QUALITY AND VISIBILITY

AI-02

The analysis of air quality issues found in the air quality impacts discussion are misleading. The results of the air quality data characterized in the DEIS were based on first level screening models which are not intended and were inappropriately used to identify potential impacts of criteria pollutants. The use of the relatively simple screening models is to provide very conservative estimates of the air quality impact of a specific source. Due to the conservative nature of these screening techniques, the predicted results should be used to indicate when and if more "refined modeling" should be employed, they do not necessarily represent the actual impacts on the ambient air quality.

More sophisticated levels of air dispersion modeling, referred to as "refined modeling", should be utilized to predict more realistic estimates of the impacts of the criteria pollutants in question. This multi-tiered approach follows the procedures stated by the United States Environmental Protection Agency, Office of Air Quality Planning and Standards in the "Guideline on Air Quality Models (Revised)".

AI-02

Based on the results predicted by the screening analysis, the DEIS implies that there could be potentially significant impacts, yet the use of clean burn reciprocating and turbine engine emission data and more "refined modeling" does not support this assertion.

The analysis of the visibility impacts on the Class I areas, as represented in the DEIS, predicted results that are deceptive. These predicted results were based on the implementation of a level one visual screening analysis. The predicted results, arrived at by using the screening model, are based on assumptions of very conservative meteorological conditions. The use of the relatively simple screening models is to provide very conservative estimates of the visual impacts of a specific source. Due to the conservative nature of these screening techniques, the predicted results should be used to indicate when and if more "refined modeling" should be employed and do not necessarily represent the actual impacts on the surrounding area. These visual modeling procedures are discussed in the United States Environmental Protection Agency, Office of Air Quality Planning and Standards, "Workbook for Visual Impact Screening and Analysis".

In order to dispel concerns over predicted impacts, based only on the use of first level screening analysis in the DEIS, Trinity Consultants, Inc., has been employed by TransColorado to perform an in-depth review of both the air quality and visual impacts for the compressor stations in question. Trinity Consultants, Inc., specializes in air quality issues and has the necessary expertise to refute the misleading presentation of the visibility and air quality impacts presented in the DEIS. Trinity Consultant's analysis (see attachment 1) is included as part of TransColorado's comments.

VISUAL RESOURCES

The visual resources analysis in the DEIS applied a consistent methodology to the evaluation of potential impacts on all lands affected by the pipeline. A visual absorption capability (VAC) analysis and visual rating analysis was also conducted in the project area. The impact levels specified in the DEIS are directly related to VRM/VQO classes, without consideration of the size and type of viewing population.

VS-09
VS-13

Visual mitigations are described for all routes equally; however, they are not specifically tied to the areas of adverse impacts. No criteria is offered for determining whether or not mitigation would be effective.

PAGE SPECIFIC COMMENTS

ABSTRACT

TransColorado will tie into the interstate natural gas transportation systems of El Paso and Transwestern located in close proximity to the Blanco plant near Bloomfield, New Mexico. The gas transported by TransColorado will not be processed in the Blanco plant.

SUMMARY

Page i, paragraph 1, sentence 2, comment:

The pipeline will not deliver natural gas produced in the Rocky Mountain Region to the Blanco plant. TransColorado will tie directly into the transportation systems of El Paso and Transwestern.

Page i, paragraph 3, sentence 3, revised:

TransColorado has also applied to the Federal Energy Regulatory Commission (FERC) for a Certificate of Public Convenience and Necessity. On December 20, 1990, the FERC issued its order "Preliminary Determination on Non-Environmental Issues" approving the project subject to issuance of a final order addressing environmental aspects of the project.

Proposed Action, Project Description, page i, paragraph 2, sentence 3 -- delete the following:

either TransColorado-Dolores Alternate 1 (MP 207.7), or

Proposed Action, Project Description, page i, paragraph 2, sentence 6, revised:

Six meter stations which measure the quantity of supply gas entering or delivery gas exiting the pipeline would also be constructed.

Proposed Action, Project Description, page ii, paragraph 1, sentence 1:

Pigging facilities also serve to enable internal inspection of the pipeline for safety purposes.

Proposed Action, Project Description, page ii, paragraph 3, replace sentences 2 and 3 with:

Constructing the pipeline in accordance with the general protection measures requires that some judgement be applied in the field, which must be implemented under the supervision of qualified environmental professionals. On private and state lands, this duty will be performed by environmental specialists. An appropriately qualified consulting firm with environmental monitoring support will be utilized during the construction of the pipeline. A minimum of one environmental inspector will be provided for each spread. The environmental inspectors will monitor construction activities on private, state and federal lands to ensure compliance with approved

that Northwest no longer proposes to install 247 miles of 24-inch pipeline loop on the southern half of its system (south of Opal, Wyoming).

TransColorado Gas Transmission Project - Related Projects, pages 12 & 13, Table 1-2, revised:

See Attachement 2.

TransColorado Gas Transmission Project - Authorizing Actions, page 15, Table 1-3, revised:

See Attachment 3.

Impacts to Floodplains, page 25, paragraph 2, comment:

It may not be possible at certain streams to construct the crossing perpendicular to the channel. Topographic constraints may not allow a perpendicular crossing. The environmental protection measure is too restrictive and should be modified. It is recommended that the statement read: Where practical, stream crossing will be constructed perpendicular to the channel, locating major staging areas outside of the 100-year floodplain, burying the pipeline below the maximum estimated scour depth of a 100-year flood and locating facilities outside of 100-year floodplains.

Route Selection Process, page 26, comment:

RT-21 Several route alternatives were evaluated and eliminated from further consideration by TransColorado because they were not deemed constructable. The FEIS should document alternatives evaluated and eliminated before final routing proposals were submitted to the BLM and Forest Service.

CHAPTER 2

Proposed Action, page 29, paragraph 1, comment:

The proposed pipeline will be interconnecting with the interstate natural gas transmission systems of El Paso and Transwestern near El Paso's Blanco plant. Natural gas being transported by the TransColorado pipeline system will not be processed in the Blanco plant.

TransColorado Gas Transmission Project - Land Ownership and Parallel Facilities, page 30, Table 2-1, revised:

See Attachment 4.

Proposed Action, page 29, paragraph 3, revision:

Design and construction....would be in compliance with applicable industry standards.

construction and environmental protection measures, applicable permits, certificates and easements. On federal lands, the environmental inspectors will be subordinate to the Federal Authorized Officer. Environmental inspectors will have peer status with other inspectors and will be properly integrated into the construction supervision team for the project.

Agency Preferred Alternative, Project Description, page iv, paragraph 3, sentence 2 -- delete the following:

one of three possible compressor sites (Dolores [MP 215.2], Dolores Alternative 1 [MP 198.0], or

CHAPTER 1

Natural Gas Supply and Demand, page 3, paragraph 1, comment:

This paragraph describes the large volumes of natural gas that are used to make steam for enhanced oil recovery (EOR). One of the major reasons for the Kern River Pipeline, which is presently under construction, is to deliver gas for EOR. Large quantities of gas are not presently being used for such purposes.

Questar Pipeline System Expansions, page 8, paragraph 1, sentence 3 (added):

On October 24, 1991, Questar Pipeline received certificate authority, from the FERC, to install the Muddy Creek interconnect.

Questar Pipeline System Expansions, page 10, paragraph 1, revised:

On July 3, 1991, Questar Pipeline filed a FERC certificate application (Docket No. CP91-2394-000) to construct and operate approximately 46 miles of 20-inch pipeline and 14,508 hp of compression in southwestern Wyoming and eastern Utah, which will serve as a competitive alternative to CIG's proposed Uinta Basin lateral.

Northwest Pipeline Corporation (Northwest) System, page 10, paragraph 1, revised:

On December 31, 1990, Northwest Pipeline Corporation filed an application with FERC (Docket No. CP91-780-000) to add compression and expand its existing pipeline from Ignacio, Colorado, to the Pacific Northwest. The primary gas sources for this pipeline expansion would be the San Juan Basin and imported gas from Canada. This expansion would primarily consist of 627 miles of new loop and replacement lines of various diameters, 148,135 hp of compression and related upgrades of existing compressor and meter stations to accommodate 534,007 Dth/d of new firm transportation service. In October 1991, Northwest amended its system expansion filing to principally reflect the proposed construction of only 379 miles of new loop and replacement pipeline, 114,035 hp of compression and related facility improvements to accommodate 433,415 Dth/d of new firm transportation service. Most relevant to the TransColorado project is the fact

Proposed Action, page 31, Figure 2-1, comment:

Identification of the Dolores Alternate #1 compressor station is not a component of TransColorado's proposed action; therefore, it should be deleted. The southern terminus should designate interconnects with El Paso and Transwestern, not the Blanco plant.

Pipeline Construction, page 33, paragraph 3, sentence 1 -- delete the following: ,testing,

Pipeline Construction, page 33, paragraph 3, sentence 1, comment:

Current plans call for the use of factory-applied fusion bond epoxy coating on the TransColorado Pipeline. Therefore, field coating activities will be limited to coating of weld joints with either shrink sleeves or epoxy coating.

Clearing & Grading, page 33, paragraph 1, comment:

In general, it will be necessary to clear vegetation, including trees, from the entire right-of-way.

Hydrostatic Testing, page 35, paragraph 1, sentence 2, correction:

49 CFR Part 192

Slopes, page 35, paragraph 1, comment:

SO-04 The DEIS identifies areas where unstable slopes and faults would be crossed by the TransColorado pipeline. It also identifies various measures that may be included in the design of the pipeline in unstable areas. Detailed engineering and final alignment studies would be conducted after the route selection has been determined by the environmental process. Each unstable area and fault would be studied, however, a site-specific engineering design may not be warranted at all areas with unstable slopes or faults as identified in the DEIS. Due to the conduct of detailed studies after final route selection, the result of the studies would not be available for inclusion in the final EIS.

Roads and Railroad Crossings, page 35, paragraph 1, comment:

Where allowed by governing agencies, some paved county or local roads that are lightly traveled would be open-cut.

River and Stream Crossings, pages 35-36, comment:

WA-08 The DEIS states that the dry ditch construction method, using flume pipe culverts, would be used on streams classified as important fisheries. Table 2-7 indicates that the dry ditch construction method would be used on streams less than 10 feet wide and considered a significant fishery. As a means of clarification, it would be helpful if the specific streams were identified in a table.

Natural Resource Requirements, page 37, paragraph 2, sentence 4, correction:

TransColorado has projected. . .

TransColorado Gas Transmission Project - Perennial Water Crossings - Proposed Action, pages 38 and 39, Table 2-3, comment:

WA-09 This table identifies high quality Class II streams that would be crossed by the TransColorado Pipeline. High quality Class I streams should also be identified in this table.

Facilities Construction, page 42, paragraph 2, sentence 1, correction:

Approximately 305 miles . . .

Compressor Stations, page 42, paragraph 1, comment:

As indicated in a previous comment (page 31, Figure 2-1), the Dolores Alternate #1 compressor site is not part of the proposed action; therefore, any discussion regarding this facility should be deleted.

TransColorado Gas Transmission Project - Pipeline System Components and Design - Proposed Action, page 43, Table 2-5, revised:

See Attachment 5.

TransColorado Gas Transmission Project - Description of Compressor Stations and Estimates of Pollutants - Proposed Action, page 44, Table 2-6, comment:

AI-16 The Dolores Alternate #1 compressor should be deleted from the table because it is not part of the proposed action. It should be noted that the Rocky Mountain DeBeque facility is an existing compressor station with two 600 hp reciprocating compressor engines currently in operation. Emission source data is not identified for all facilities. The table also fails to identify the units for the main figures. Presumably, they refer to tons per year. Also, a footnote should be added indicating centrifugal compressors are turbine driven.

Meter Stations, page 45, paragraph 1, comment:

Meter stations will be utilized to measure gas feeds into and out of the pipeline at custody transfer locations rather than to measure total flow through the pipeline.

Block Valves, page 45, paragraph 1, sentence 1, revised:

The exact number and spacing of the manually-operated block valves cannot be determined until final routing has been determined. Valves would be installed in conformance with DOT requirements.

Pigging Facilities, page 45, paragraph 1, comment:

It should be noted that the major reason for installing pigging facilities is to enable internal inspection of the pipeline with inspection pigs.

Infrastructure Requirements, page 45, paragraph 3, comment:

Clarification is required concerning the wildfire suppression policy, if the intent is to agree to provide TransColorado contractor personnel and equipment to fight fires not caused by TransColorado's operations.

Transportation Requirement, page 45, paragraph 1, sentence 1 -- delete the following:

staging areas

Operation and Maintenance, page 46, paragraph 1, sentence 1, comment:

The only facilities that would be operated by remote control from the Salt Lake gas control center are the Piceance, Olathe and Dolores compressor stations. As indicated in a previous comment (page 45, paragraph 1), the sectionalized block valves would be manually operated.

Operation and Maintenance, page 46, paragraph 1, last sentence - delete the following:

metal

Operation and Maintenance, page 46, paragraph 6, sentence 1 -- delete the following:

twice a year

Emergency Response, page 47, paragraph 2, sentence 2, revised:

Pipeline emergency response crews would then be dispatched to shut block valves to further isolate the affected pipeline section.

General Protection Measures, pages 48-56, Table 2-7, comment:

TransColorado has reviewed the general protection measures identified in Table 2-7 which are to be implemented during the construction of the pipeline. TransColorado has suggested modifications to the proposed measures. Modifications are noted in the following comments.

Monitoring and Compliance, comment:

Constructing the pipeline in accordance with the general protection measures requires that some judgement be applied in the field, which must be implemented under the

supervision of qualified environmental professionals. On private and state lands, this duty will be performed by environmental specialists.

TransColorado will utilize an appropriately qualified consulting firm to provide environmental monitoring support during the construction of the pipeline. A minimum of one environmental inspector will be provided for each spread. The environmental inspectors will monitor construction activities on private, state and federal lands to ensure compliance with approved construction and environmental protection measures, applicable permits, certificates and easements. On federal lands, the environmental inspector will be subordinate to the Federal Authorized Officer. Environmental inspectors will have peer status with other inspectors and will be properly integrated into the construction supervision team for the project.

The environmental inspector will report environmental permit violations and non-compliance of construction and environmental protection measures to the chief construction inspector who has the authority to stop construction activities. The environmental inspector will be responsible to determine where corrective action is necessary due to violations of environmental conditions of applicable permits, certificates and easements. Working within the framework of the construction supervision team, the environmental inspector shall oversee that all necessary corrective action is properly initiated.

Air Quality, 4, add the following after ROW:

if required by the owner/operator of the power line.

Topography, comment:

TransColorado's commitment to implement mitigation measures at fault crossings is limited to: 1) areas where faults are located in populated areas where pipeline failure could jeopardize the public health and safety, and 2) crossings where fault creep could jeopardize pipeline integrity.

Surface Water Quality, 8 comment:

The location of municipal and individual water wells were identified during the development of the DEIS. The alignment of the pipeline will be located to avoid these wells. A minimum distance of 50-feet will be maintained between the pipeline and wells unless waived by the authorized representative.

WA-10 Surface Water Quality, 11 -- delete the following:

and a 400-foot radius of all municipal water supplies.

Surface Water Quality, 12, comment:

This measure should also identify storm water discharge permit(s).

Stream Crossings, 6, revised:

Section 401 water quality certification waiver will be obtained if required.

Stream Crossings, 7, revised:

Where practical, stream crossings will be constructed perpendicular to the channel to minimize the length of disturbance.

Stream Crossings, 8, revised:

Stream banks will be backfilled as close as possible to original contour, using gravel or riprap if necessary.

Stream Crossings, 9, revised:

Construction equipment crossing streams will be minimized; culverts or portable bridges will be used where necessary to reduce sedimentation and bank degradation.

Stream Crossings, 18, revised:

Stream flow will be maintained to protect fisheries and aquatic habitat of HQ_1 and HQ_2 streams during construction.

Stream Crossings, 19, revised:

ROW will be aligned to avoid loss of mature riparian trees to the extent practical.

Stream Crossings, 20, revised:

Irrigation ditches and canals will be periodically monitored for two seasons after construction to ensure the integrity of the ditch and canal banks.

Stream Crossings, 21, revised:

All permanently lined irrigation ditches and canals will be bored unless waived by authorized officer or irrigation company.

Stream Crossings, 27 -- delete the following:

remediation

Stream Crossings, 28, revised:

The pipeline will be buried below the estimated scour depths associated with a 100-year flood event. Measures will be taken to ensure the integrity of the pipeline at crossings where channel degradation has reduced the cover to less than the 100-year scour depth.

Water Use, 3, revised:

Discharge permits (local, state, NPDES) will be obtained for hydrostatic test water disposal.

Water Use, 4, revised:

Hydrostatic test water . . .

Wetlands, 1, revised:

Wetland areas will be avoided where possible.

Wetlands, 8, revised:

To the extent possible, . . .

Wetlands, 9, revised:

Proper clearing techniques . . . in place where possible to maintain stability of soils.

Soils, 7, comment:

This measure is extremely restrictive and unnecessary. TransColorado accepts its responsibilities to restore the ROW after construction. This will include grading and installation of erosion control structures. TransColorado is concerned that wet weather shutdowns will escalate construction costs and shorten seasonal environmental construction windows. Therefore, it is recommended that this measure be deleted and replaced with the following: At the point construction equipment and vehicles can no longer negotiate grades within the ROW due to adverse weather conditions, the BLM/Forest Service Authorized Officer will issue a stop order to prevent rutting or excessive tracking of soils in the ROW.

Soils, 13, revised:

Depending on the time of year, either temporary or permanent erosion control measures shall be initiated within 20 days after the trench is backfilled to aid in site stabilization.

Soils, 14, revised:

Permanent water bars shall drain away from disturbed areas and begin and end in vegetation or rock.

Soils, 18 revised:

Where necessary noxious weed-free . . .

Prime and Unique Farmlands, 3, revised:

Return agricultural land, to the extent possible, to its original condition . . .

Wildlife, 2 -- replace:

"prevent disturbance" with "minimize"

Wildlife, 3, revised: A nesting raptor survey will be conducted prior to construction if required by the U.S. Fish & Wildlife Service.

TE-09 Threatened and Endangered Species, 8, comment:

TransColorado is concerned that the mitigation measure is too restrictive. A definition of what constitutes a "bald eagle winter roost tree" should be included in the glossary of the EIS.

TE-09 Threatened and Endangered Species, 10, comment:

This measure should be deleted because the Southwestern Willow Flycatcher does not occupy the area in the location of the Gunnison River crossing.

VS-09 Visual Resources, 1, comment:

Some limitation needs to be placed on the extent visual impacts will be mitigated. Some impacts will occur even with mitigation.

Visual Resources, 7, revised:

ROW width in high-value visual areas will be minimized to the extent possible.

Visual Resources, 9, revised:

To the extent possible, existing parallel roads . . .

VS-10 Visual Resources, 10, comment:

Power line interference studies will dictate the necessary standoff distances between facilities. Also, safety considerations dictate a 25-35 foot offset from existing pipelines. Recognizing these constraints, every effort will be taken to utilize existing corridors to the maximum extent possible.

VS-11 Visual Resources, 11, comment:

The final alignment must be reviewed with jurisdictional agencies for acceptability.

Soils, 19, revised:

Trench breakers will be constructed on steep slopes (greater than 20%) to prevent water runoff in the ditch after pipeline installation.

Vegetation, 1, revised:

Where possible, appropriate clearing techniques will be utilized . . . . roots and stockpiles or to dispose of vegetation wastes to maintain the stability of the ROW and provide erosion control.

Vegetation, 3, revised:

Non-linear ROW techniques (feathering) will be used to minimize visual impacts in areas as determined by the Authorized Officer or landowner.

Vegetation, 9, revised:

If construction is completed more than 30 days before the normal seeding season, temporary erosion control measures shall be used in specific areas as directed by the Authorized Officer or landowner.

Vegetation, 16, revised:

Cleared vegetation will be disposed of along the right-of-way for erosion control or as directed by the authorized officer or landowner.

Vegetation, 22, revised:

A weed control program will be implemented for five years following construction.

Vegetation, 23, revised:

Mat-type mulch . . .

Forestry, 2, revised:

Unmerchantable timber may be hauled off-site or scattered on the ROW as directed by the authorized officer or landowner.

Forestry, 5 -- delete the following:

except in the actual trench where stumps will be pulled during trenching.

Prime and Unique Farmlands, 2 -- delete the following:

,tested,

Transportation, 8, revised:

Where the pipeline is constructed across . . .

Transportation, 10, comment:

It is recommended that this measure be deleted. Refer to comment under "Soils, 7."

Land Use, Zoning and Local Communities, 3, revised:

A pre-construction meeting will be conducted with the BLM, USFS and FERC.

Land Use, Zoning and Local Communities, 5 revised:

Individual property survey maps based on field surveys and indicating the centerline of the ROW will be provided to landowners prior to construction as part of ROW negotiations. The centerline and outer limits of the ROW will be staked prior to start of construction.

Land Use, Zoning and Local Communities, 9, comment:

Conflicts with land use development plans are addressed in the DEIS. This measure can be eliminated because incompatible uses with development plans are being considered in the selection process for the pipeline route.

Land Use, Zoning and Local Communities, 12, comment:

This measure should be deleted. It is obvious that homes will be avoided. At a minimum the construction ROW will be located 50 feet from residences.

Public Health and Safety, 6 -- replace:

"areas" with "receptors".

TransColorado Gas Transmission Project -- Site-Specific Environmental Protection Measures, pages 59-63, Table 2-8:

Soils and Water Stipulations, comment:

It is not possible to limit surface disturbance to 35 feet within the Palisade watershed due to construction safety considerations. Every effort will be made to minimize the width of disturbance.

SO-05 Soils and Water Exception A, comment:

Barriers should not be required in all cases. They would be of primary benefit in

areas of side hill or traverse crossing of slopes. Depending upon topography, barriers could potentially be of little use when the ROW follows the fall line of a slope.

Wildlife Stipulations, comment:

The stipulation should reference Table 2-10 instead of Table 2-6.

TE-10 Threatened and Endangered Species Stipulations, comment:

Depending upon the location, it will be difficult if not impossible to avoid removing trees larger than 20 feet in height or any snags.

TE-11 Also, the stipulation regarding the Mexican Spotted Owl is misleading. It is assumed TransColorado would restrict its activities within the segment of the core area that intersects the construction ROW.

Travel Restrictions, comment:

The stipulation should reference Table 2-9 instead of Table 2-6.

WL-07 TransColorado Gas Transmission Project -- Recreationally and Economically Important Wildlife Species, pages 65-68, Table 2-10, comment:

The table identifies important wildlife habitat as crucial or severe. How are crucial and severe defined? Crucial habitat is defined in the glossary; however, it is non-specific and vague.

Agency Preferred Alternative, Compressor Stations, page 70, paragraph 2, comment:

Under the Agency Preferred Alternative, the location for the Dolores compressor station is location #2. The Dolores and Dolores #1 sites should be deleted from the discussion.

Agency Preferred Alternative, page 71, Figure 2-3, comment:

Identification of the Dolores and Dolores Alternate #1 compressor stations are not components of the Agency Preferred Route; therefore, they should be deleted. The southern terminus should designate interconnects with El Paso and Transwestern, not the Blanco plant.

Pipeline System Components and Design - Agency Preferred Alternative, page 74, Table 2-12, comment:

It should be noted that six new compressor stations are being proposed for the project and the existing Rocky Mountain DeBeque facility would be expanded.

TransColorado Gas Transmission Project - Description of Compressor Stations and Estimates of Pollutants - Agency Preferred Alternative, page 79, Table 2-15, comment:

The Dolores and the Dolores Alternate #1 compressor stations should be deleted from the table because they are not part of the Agency Preferred Alternative. It should be noted that the Rocky Mountain DeBeque facility is an existing compressor station with two 600 hp reciprocating compressor engines currently in operation. Emission source data is not identified for all facilities. The table also fails to identify the units for the main figures. Presumably, they refer to tons per year. Also, a footnote should be added indicating centrifugal compressors are turbine driven.

Rationale for Selection of Agency Preferred Route in the Mancos Valley Area, page 80, comments:

RT-22
- Data presented within the DEIS does not support the contention that the Agency Preferred Alternative is less prone to landslides (see Figure 3-2).

RT-23
- No discussion is presented concerning the additional impacts to private lands associated with the Agency Preferred Alternative.

RT-24
- No discussion is presented concerning impacts to private residences associated with the Agency Preferred Alternative through the Mancos area (25 residences within 500 feet of ROW versus 0 residences for TransColorado's Proposed Action).

RT-25
- Table 2-19 demonstrates additional impacts to farmlands and visual resources resulting from the Agency Preferred Alternative.

TransColorado Gas Transmission Project -- Recreationally and Economically Important Wildlife Species, pages 81-83, Table 2-16, comment:

WL-07

The table identifies important wildlife habitat as crucial or severe. How are crucial and severe defined? Crucial habitat is defined in the glossary; however, it is non-specific and vague.

TransColorado Gas Transmission Project -- Route Differences - Proposed route versus Agency Preferred Route, Mancos Area, pages 87-89, Table 2-18, comment:

RT-26

Table 2-18 compares TransColorado's proposed route and the Agency Preferred Alternative. The comparison in this table is misleading. The route comparison begins near the Montezuma and Dolores county line and terminates near the Montezuma and LaPlata county line. This comparison inaccurately includes the first nine to ten miles where the routes are one in the same on National Forest lands. Along the Agency Preferred Alternative, the National Forest ownership is listed at 36%, when in reality it is approximately 6%. Also, the private ownership is identified at 53% when in actuality it is closer to 83%. The comparison between these two alternate routes is essential to evaluating the resource impacts associated with each route. When data is included in the comparison from areas where the routes are parallel, actual analysis of the impacts is deceiving. Therefore, not only are the ownership numbers inaccurate, but all other

RT-26 resource data is inaccurately portrayed. This table needs to be corrected to accurately represent the information necessary to accurately compare these two alternate routes.

Pipeline System Alternatives, pages 90-91, comment:

AL-03 With the recent development regarding Northwest Pipeline Corporation's amended application (filed with FERC on October 7, 1991), the discussion on Pipeline System Alternatives is not valid; therefore, it should be deleted.

End Use Pipeline Alternatives, page 91, comment:

AL-04 Viable alternatives to the TransColorado Pipeline System are not available. The Kern River Pipeline is not an alternative to the TransColorado system. The primary purpose for the TransColorado Pipeline is to provide a regional natural gas transmission system to transport natural gas from the western slope of Colorado and the Rocky Mountain region. On December 20, 1990, the FERC issued a preliminary determination authorizing TransColorado's facilities based on non-environmental issues. In its findings, the FERC stated that the project would provide an advantageous configuration for the supply areas that the pipeline would serve and would enhance transportation options in the Rocky Mountain area. The Kern River Pipeline would not serve this purpose. The primary purpose of the Kern River Pipeline is to serve the Enhanced Oil Recovery operations in the San Joaquin Valley in California.

TransColorado Gas Transmission Project -- Summary Impact Comparisons Between Proposed Action and Agency Preferred Alternative, page 92, Table 2-19, Topography, comment:

PR-33 Implementation of the mitigation measures identified in the DEIS would restore the natural slope contours along the ROW regardless of the alternative selected.

CHAPTER 3

Leasable Minerals, Coal, page 103, comment:

MI-02 Powderhorn Coal Company's existing leases and the resulting impact upon routing the pipeline in the vicinity of Cabin Reservoir on Grand Mesa should be discussed. Also, the Powderhorn Coal leaseholds should be identified in Figure 3-3, Mineral Resources.

Wetlands, page 107, comment:

WL-08 The attempt to define "wetlands" is incorrect. A wetland occurs when all three conditions (periodic inundation, hydrophytic plants and hydric soils) are present. Any discussion should reference more recent materials than that produced in 1979 and should reflect current attitudes.

Cultural Resources, page 117, comment:

The DEIS indicates that the results of the Class III cultural resource survey will be included in the FEIS. This is not possible since a route has not been selected. A survey will be conducted prior to construction; however, it is unusual to complete this survey prior to route selection. Also, the result of the survey would not be published in the FEIS, but rather in a confidential report.

TransColorado Gas Transmission Project - Noise-Sensitive Receptors Within 1 Mile (5,280 Feet) of Compressor Stations, page 123, Table 3-7, revised:

See Attachment 6.

Route Differences - Proposed Action and Agency Preferred Alternative, page 130-133, comment:

Chapter 3 of the DEIS identifies the potentially affected resources in the area. Discussions on route differences are to be incorporated in the environmental consequences section of the EIS.

TransColorado Gas Transmission Project - Parallel Facilities Mancos Valley Area - Proposed Action and Agency Preferred Alternative, page 132, comment:

The column "Northwest Proposed Natural Gas Pipeline" should be deleted.

Mancos Valley Existing Utility Corridors, page 153, Figure 3-10, comment:

The Northwest Pipeline Proposal should be deleted from the Legend.

CHAPTER 4

TransColorado Gas Transmission Project -- Air Quality Impacts at Proposed Compressor Station Sites, page 157, Table 4-1, comment:

Identification of the Dolores Alternate #1 compressor station is not a component of TransColorado's proposed actions; therefore, it should be deleted.

Impacts to Topography, page 159, comment:

PR-33 Natural slope contours will not be changed on 11 acres in the Ryman Creek drainage. Implementation of the mitigation measures identified in Chapter 2 will restore the natural contours to the maximum extent possible. Neither alternative should impact topography.

Impacts to Wetlands, page 161, comment:

WL-09 During construction, reasonable efforts will be taken to avoid mature cottonwoods along the ROW near the Colorado, San Miguel, Dolores, LaPlata and Animas Rivers.

Impacts to Visual Resources, Compressor Stations, page 165, comment:

Under the proposed action, the Olathe compressor station is located at MP 121.5. The Dolores compressor station (alternate site #2) is located at MP 219.5, and it should be noted that the Dolores compressor station will not be visible from two county roads. The facility will be located approximately 800 feet from the nearest traveled road, and it will be screened by the surrounding forested landscape.

EC-29 Impacts to SocioEconomic Conditions, page 166, comment:

Based on a 9-15 month construction schedule, schools in the area will not be affected.

NO-02 Private Lands, page 167, comment:

The 55 DBA stipulation is at the nearest receptor and is not an absolute maximum limit.

TransColorado Gas Transmission Project -- Compressor Station Noise Impacts at Nearest Sensitive Receptors - Proposed Action, page 168, Table 4-2, comment:

Identification of the Dolores Alternate #2 (north site) compressor station is not a component of TransColorado's proposed action; therefore, it should be deleted. Also, it should be noted in footnote 2 that the Big Gypsum site is identified twice.

Agency Preferred Alternative, pages 171-177, comment:

The Dolores station is not a component of the Agency Preferred Alternative; therefore, it should not be included in the environmental impact analysis. Under the Agency Preferred Alternative, the Dolores alternate #2 location is the preferred site.

Agency Preferred Alternative, Impacts to Air Quality, Operation, page 171, paragraph 1, sentence 1, comment:

The Rocky Mountain Maverick compressor station would be substituted for the Rocky Mountain Big Gypsum compressor station. Also, everything after "(Tables 4-1 and 4-3)" should be deleted from the sentence.

TransColorado Gas Transmission Project -- Air Quality Impacts at Agency Preferred Alternative Compressor Station Sites, page 172, Table 4-3, comment:

Identification of the Dolores and the Dolores Alternate #1 compressor stations are not components of the Agency Preferred Alternative; therefore, they should be deleted.

PR-33 Impacts to Topography, page 173, comment:

Natural slope contours will not be changed on 11 acres in the Ryman Creek drainage. Implementation of the mitigation measures identified in Chapter 2 will restore the natural contours to the maximum extent possible. Neither alternative should impact topography.

Route Differences - Proposed Action and Agency Preferred Alternative, pages 177-185, comment:

This discussion is redundant in that it is presented in Chapter 2 and Appendix B. If this section is absolutely necessary, a table may be a better way of presenting the data.

NO-03 TransColorado Gas Transmission Project -- Compressor Station Noise Impacts at Nearest Sensitive Receptors - Agency Preferred Alternative, page 178, Table 4-4, comment:

Identification of the Dolores Alternate #2 (north site) compressor station is not a component of TransColorado's proposed actions; therefore, it should be deleted. Also, it should be noted in footnote 2 that the Big Gypsum site is identified twice.

Impacts to Topography, page 179, comment:

PR-33 Natural slope contours will not be changed on 11 acres in the Ryman Creek drainage. Implementation of the mitigation measures identified in Chapter 2 will restore the natural contours to the maximum extent possible. Neither alternative should impact topography.

No Action Alternative, page 185, comment:

MI-03 The DEIS indicates that the development of coal bed methane would continue in the Piceance Basin at a potentially lower drilling rate if TransColorado is not constructed; however, this statement is inaccurate. Based on Questar Pipeline's proposed expansions in the area and the tax credit incentives, drilling is expected to increase. It should also be noted that the Transwestern Pipeline system is under construction and El Paso will begin construction by January 1, 1992.

Uncommitted Mitigation, page 185-186, comment:

AI-06 All of the reciprocating compressor facilities proposed by TransColorado will utilize lean-burn engines. At the Piceance and Olathe facilities, turbines will be installed; however, lean-burn technology is not commercially available for turbine engines. Also, selective catalytic conversion is not commercially available for pipeline compressor engines. It should also be noted that electrification shifts the location of pollution from the compressor station to the power generation site. In addition, power sources may not readily be available or as economically viable. Based on these comments, this section should be deleted from the DEIS.

TransColorado Gas Transmission Project -- Irreversible, Irretrievable, Short-Term, Long-Term Commitment of Resources, page 188, Table 4-5, Water Resources, comment:

WA-11 Discharge of test water is permitted by the applicable water quality agencies as part of the National Pollutant Discharge Elimination System (NPDES) procedures. General and specific testing, erosion control, pollutant levels and location conditions are included in the permit. TransColorado will obtain the necessary permits for all discharges. Hydrostatic test water will be tested prior to use and before discharge. Chemical

additives will not be used; therefore, treatment of the water prior to discharge will not be required. Also, not all of the water will be returned to the surface water source.

Interactions with Foreseeable Projects, page 191, comment:

Based on Northwest Pipeline Corporation's recent amendment to their proposed system expansion, this section should be deleted from the DEIS.

APPENDIX A & B

Comment:

RT-27 The U.S. Forest Service directed TransColorado to conduct an extensive and thorough field reconnaissance of the Lost Canyon area north of Mancos, Colorado. The purpose of the reconnaissance was to identify a pipeline route which would address the private landowner concerns in the Summit Ridge/Millwood area that were expressed at the public hearing held in Cortez, Colorado, on September 26, 1991. A variation to TransColorado's proposed action (Alternate J) was identified and will be included in the EIS process. Therefore, it is necessary to revise Appendices A & B accordingly. In addition, it would be beneficial to incorporate a detailed discussion in the FEIS regarding the corridor and route analysis. The discussion should include the rationale for the selection of the route and supporting data as well as the suitability criteria used to designate a route as a pipeline corridor.

APPENDIX C

WL-10 Comment:

The tables should be labeled as Tables C-1 and C-2 instead of Appendix C-1 and C-2. These tables provide a list of the various types of wetlands crossed by the Proposed Action and Agency Preferred Alternative; however, they fail to define the classifications. Also, the tables identify the crossing method and environmental protection measures that will be employed during construction; however, the footnotes do not provide an explanation. It is assumed that the reader should refer to Chapter 2 for the information. At the end of Footnotes 5-1 and 5-3, the phrase "if required" should be added.

APPENDIX G

VS-12 Visual Resources, comment:

Reference is made to Figure G-1 which illustrates the basic steps involved in the impact analysis process; however, the figure is not included in the DEIS.

Additional Ancillary Facilities, page G-6, comment:

The DEIS references the Mailbox Park compressor facility which should be identified as the Rocky Mountain - Maverick compressor and metering station.

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GLOSSARY

Page R-13:

Delete the definition for Hydrostatic Test and replace it with the following: The most common final quality-control check of the structural soundness of a pipeline. In this test, the line is filled with water and then pressured to a designated point. This pressure is maintained for a specific period of time, and any ruptures or leaks revealed by the test are repaired.

ATTACHMENT 1

TRANSCOLORADO GAS TRANSMISSION COMPANY

Piceance Creek Compressor Station
Olathe Compressor Station
Dolores Alternate #2 Compressor Station

Dispersion Modeling Analyses

November 1991

On File - Montrose District Office, BLM

Index No. 90 90

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

NOV 21 1991

Ref: 8WM-EA

Chuck Finch
Project Manager
BLM, Montrose District Office
2465 South Townsend Avenue
Montrose, Colorado 81401

Re: Transcolorado Gas
Transmission Project, Draft
Environmental Impact Statement

Dear Mr. Finch:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Region VIII office of the Environmental Protection Agency (EPA) has reviewed the reference Draft Environmental Impact Statement (DEIS). We offer the following comments and concerns for your consideration in the preparation of the Final Environmental Impact Statement (FEIS).

The DEIS provides discussion of coordination efforts with other affected Federal Resource Agencies i.e., U.S.D.A. Forest Service (FS), the Bureau of Reclamation (BUREC), and the National Park Service (NPS). We understand that the proposed pipeline routing will follow existing resource agency designated utility/pipeline corridors. We also understand that due to existing right-of-way constraints in portions of the agency preferred routing that new segments of utility corridors across FS lands are being considered.

AI-07 The EPA has the following concerns with the referenced DEIS: The lack of additional modeling information related to potential exceedence of the Prevention of Significant Deterioration (PSD) Class II nitrogen dioxide increment, and the potential for violation of NPS and State of Colorado visibility requirements near Mesa Verde National Park; Potential water quality impacts primarily related to increases in salinity from disturbance

WA-26 during pipeline construction of saline soils, and additional toxic sediments on water quality from past mining activities to the Delores and San Miguel Rivers; and wetlands disturbance/fill.

We recommend that necessary additional air quality modeling information related to PSD concerns be conducted and discussed in the FEIS. Also, additional analysis of potential nitrogen dioxide concentrations resulting in plume visibility impacts at Mesa Verde should be included. This information is necessary to adequately determine negative impacts and appropriate mitigation measures.

The DEIS in Chapter 3 acknowledges the existence of saline/alkaline soils and that the preferred route would disturb approximately 42 linear miles. Chapter 4 estimates 527 acres of saline/alkaline soils will be disturbed during pipeline construction. If there is a potential for increased salinity in

WA-27 surface waters from erosion, an attempt to quantify this contribution to Colorado River degradation is necessary. The FEIS should break out the saline vs. alkaline soils acres and discuss the significance of any salinity impacts.

The discussion related to wetlands impacts is somewhat inconclusive. While it is the intent of the preferred routing to avoid wetlands and riparian zones, it is uncertain whether the proposed impacts to wetlands 2.1 to 3.0 acres is based on

WA-23 estimates or on-ground assessment. With over 23 stream crossings and 290 miles (Agency Preferred Alternative), and approximately 2,800 acres disturbed during construction it appears that wetland acre impacts are underestimated.

A primary environmental concern associated with pipeline construction is the potential for pipeline bedding materials (e.g. sand and/or gravel) to act as a conduit or drain in wetland crossings where gradient exists. This can result in adverse affects by decreasing the extent of wetlands in a given area.

PR-37 The FEIS should stipulate that in areas where drainage might occur with pipeline crossings through wetlands that cut-off collars be used to prevent unintentional draining of wetlands. Monitoring of these sites should be required and any inadvertent losses should be fully mitigated.

The DEIS states that pipeline routing will result in less than 1 percent of the wetlands in any watershed being disturbed by pipeline construction. We agree that with wetland avoidance

WA-24 practices it is anticipated that wetlands impacts can be reduced. However, depending on where wetland impacts occur and the type/function relationship of the impacted wetland to the immediate area, the impact could be significant.

PR-51 In addition, the DEIS estimates that 4300 cubic yards of solid wastes will require appropriate disposal. The FEIS should specifically stipulate that, under no circumstances, will disposal occur in special aquatic sites, including wetlands.

We are recommending a rating of EC-2 for this DEIS. This means that the EPA has environmental concerns and has identified impacts that should be avoided to fully protect the environment. The identified additional information, data, analyses, and discussion should be included in the FEIS. We have attached a copy of our rating creteria.

If you have any questions or if we can be of further assistance, please contact Mike Hammer of my staff at (303) 293-1695 or FTS 330-1695.

Sincerely,

Robert R. DeSpain

Robert R. DeSpain, Chief
Environmental Assessment Branch
Water Management Division

Attachment

ICY AND PROCEDURES 1640

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION*

Environmental Impact of the Action

LO—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alterna tive or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably avail able to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment.

The prescribed VRM designation for special management areas is Class II, and as noted above, BLM is participating with other parties in developing a special area management plan for the Grand Mesa slopes. For the various reasons given above, the Class III VRM designation is an inadequate basis for evaluating visual impact in this case.

VS-25 The Draft EIS, nonetheless, finds only moderate visual impact of the pipeline on the Grand Mesa, based on the Class III VRM objective. Appendix G contains a reference to extensive photographic visual analysis done by ENSR (the principal preparer of the DEIS), including "over 1,200 carefully recorded photographs." The EIS needs to present this supporting analysis, particularly in areas of high sensitivity like the Grand Mesa. One useful method is to show the subject area from several representative vantage points, once as it exists and once with a simulated image of the completed project. The impact can then be assessed according to the aesthetic value of the site (based in part upon Class II VRM standards) and the degree of visual intrusion.

In light of the multiple uses envisioned for the emerging Grand Mesa slopes special management area, the quality of the landscape is of importance to those viewing it from within, as well as from distant vantage points. Therefore, a pipeline alignment that is hidden from view of urban areas in the valley but that compromises the aesthetic quality of the landscape, as seen from within that landscape, may still cause a significant visual impact.

The Project calls for clearing a 75-foot construction right-of-way which, the EIS states, will be revegetated following construction. The steepest and therefore most visible part of the

proposed route over the Grand Mesa affects the Pinyon-Juniper community. These ecologically fragile trees grow very slowly and do not easily return to areas from which they have been cleared.

The following illustrations demonstrate the potential for visual impact. Plate 1 shows the Grand Mesa western slope from the lower Somerville Ranch on a mid-morning in autumn. The deep green of the pinyon-juniper forest is evident. In Plate 2, showing the same background subject from a nearer vantage point, the "chained" (cleared) areas on the lower slope of the Grand Mesa are quite visible. Plate 3 illustrates the fragility of the Pinyon-Juniper community: the stubbly field shown here in the foreground was cleared of Pinyon and Juniper trees more than 20 years ago. Very little revegetation has taken place. The proposed Project would clear a 75-foot-wide swath in the forest nearly to the top of the Mesa. The potential for visible long-term scars is apparent in these illustrations.

VS-26 An adequate visual analysis will depend on adequate analyses elsewhere in the EIS of soils and terrestrial ecology, neither of which has been provided in the Draft EIS. The soils in this rugged reach of the pipeline route are very rocky. Once the trench has been backfilled, the 75-foot-wide disturbed area may look like a moonscape of rocks with little if any natural topsoil
VS-13 to support reseeding. The EIS must demonstrate whether earth disturbance here can be mitigated by bringing in new topsoil or some other means. Based partly on this soils analysis, the
VS-23 terrestrial ecology analysis must consider the prospects of successfully revegetating the indigenous Pinyon and Juniper at this location. Given the very long time the Pinyon-Juniper
RE-10 community may need to return, the EIS should explain what plants would be used for immediate revegetation, and what plants would succeed them in the near term. Only with this information can

the visual analysis then accurately predict the appearance of the area from specified vantage points at certain future times--perhaps five years after construction, when interim revegetation has developed--and then 20 or more years after construction, or at whatever time the pinyon-juniper is likely to begin to revegetate.

Without such an analysis, the City of Grand Junction is unable to evaluate the environmental impact of the proposed Project on the visual quality of the Grand Mesa. Indeed, all the comments made in this memorandum report return to a common failing of the Draft EIS: it does not contain the site-specific information the cooperating agencies and the public need to make informed decisions on the proposed Project. These agencies, including the City of Grand Junction, cannot satisfy their obligations under NEPA unless due consideration is given to the topics discussed herein in either a revised Draft EIS, in the Final EIS, or in some combination of Final EIS and a Supplemental EIS on the Grand Mesa segment of the Project.

Index No. 93

United States Department of the Interior
NATIONAL PARK SERVICE
ROCKY MOUNTAIN REGIONAL OFFICE
12795 W. Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

IN REPLY REFER TO:

L7619 (RMR-PP)

NOV 12 1991

Memorandum

To: District Manager, Montrose District Office, Bureau of Land Management
Attention: Mr. Chuck Finch, Project Manager

From: Acting Associate Regional Director, Planning and Resource Preservation, Rocky Mountain Region

Subject: Review of Draft Environmental Impact Statement for the Trans-Colorado Gas Transmission Project, Colorado/New Mexico (DES-91/0023)

The National Park Service (NPS) has reviewed the above-referenced document and offers the following comments. Management of Bureau of Land Management (BLM) lands is of concern to the NPS because actions taken on these lands may impact units of the National Park System or other areas administered by the NPS. Two units, Mesa Verde National Park and Black Canyon of the Gunnison National Monument could be impacted by the proposed transmission line.

Air Quality

We are concerned that the document does not address critical environmental issues that were identified in our review of earlier drafts and expressed in a meeting our Air Quality Division had with BLM representatives. The failure to address the following issues will result in an incomplete Final Environmental Impact Statement (FEIS) that will not adequately address impacts to the air quality of Mesa Verde and Black Canyon, two National Park System units near the proposed development.

AI-10 The proposal to install uncontrolled reciprocating compressor station engines in the immediate vicinity of a PSD Class I area is not considered Best Available Control Technology (BACT) by the NPS. The nitrogen oxide (NO_x) emissions from the proposed reciprocating engine compressor station can be reduced by up to 90 percent with the application of selective catalytic reduction control technology. The use of a turbine engine compressor station would reduce the NO_x emissions by 50 percent. These technologies are considered by NPS to represent BACT.

3

AU-14 Mesa Verde Waterline

WA-28 The document should note that the Mesa Verde's waterline right-of-way was not listed on page 15 of the DEIS with other required authorizing actions. Also, what will happen to the park's waterline if it is crossed by a gas pipeline that is ionized. Will this cause a deterioration of the water pipeline?

Trail Development

In § 9(b) of the National Trails System Act, Federal Agencies are encouraged to make utility rights-of-way available for expanding or improving the national trails system:

> " . . . and other Federal agencies having jurisdiction or control over or information concerning the use, abandonment, or disposition of roadways, utility rights-of-way, or other properties which may be suitable for the purpose of improving or expanding the national trails system shall cooperate with the Secretary of the Interior and the Secretary of Agriculture in order to assure, to the extent possible, that such properties having values suitable for trail purposes may be made available for such use."

REC-02 As a result of our involvement in assisting State and local governments and other organizations with trail development, we are aware of the interests of communities and organizations in the collateral use of the route proposed for the pipeline as a multi-use trail. Pursuant to § 9(b) of the National Trails System Act, we request that the eventual route of this line be considered for such use. In addition to considering the provisions of this act, such secondary use of the proposed right-of-way would help defray the dedication of public lands to this singular economic use and provide a unique opportunity for public/private sector cooperation by providing a multi-use trail for bicycling, hiking, horseback riding, cross-country skiing, and other potential trail uses.

We appreciate the opportunity to comment on this document. If you have any questions on our comments, please contact Michael Duwe, Division of Planning and Compliance at FTS 327-2830 or commercial (303) 969-2830. We welcome additional meetings with your office and the TransColorado Gas Transmission Company.

Michael D. Snyder

Michael D. Snyder

2

The initial visibility analysis applied the VISCREEN visibility model. This analysis indicates that operation of the Delores Alternative 2 compressor station would cause plume visibility impacts at Mesa Verde. The application of NPS-proposed BACT would most likely eliminate the visible plume impact.

AI-07 Regardless, the FEIS should contain a revised visibility analysis in which the NPS-proposed BACT is applied to the compressor station, or a Level 2 VISCREEN modeling analysis is performed. The VISCREEN analysis should apply the measured onsite visual background range distances for the respective seasons; spring 198 km, summer 131 km, fall 140 km, and winter 179 km.

In the meeting with BLM, all agreed that the dispersion modeling was to be performed by using the National Weather Service data from Farmington, New Mexico. A cumulative dispersion modelling NO_x PSD increment analysis needs to

AI-05 be performed by modeling the proposed compressor station plus all other NO_x PSD increment-consuming sources in the area. Also, total pollutant loading needs to be calculated. The total pollutant loading is the TransColorado Pipeline station's impact plus the annual background NO_x concentration.

AI-03 The cumulative NO_x concentration is a specific concern to the natural and cultural resource managers in the park. In addition to the visual affect of the plume from the compressor station, an Air Quality Related Values (AQRV) analysis needs to be performed to examine the effects of the NO_x emissions on the vegetation, natural water sources, and fauna from the cumulative effect of the compressor station emissions. The effects the compressor station emissions will have on the cultural resources within the park need to be addressed. Specifically, will the nitrates and other aerosols released deteriorate the archeological ruins within the park? If the potential impacts cannot be addressed at this time, the project planning should cease until this analysis can be conducted.

AI-11 In addition, it should be noted that in the "No action" alternative, the EIS failed to mention that there would not be any air quality deterioration if this project alternative is selected.

AI-04 The document indicates one of the major compressor stations will be located in the vicinity of Olathe, Colorado, approximately 10 miles east of Black Canyon of the Gunnison National Monument. This compressor operation, combined with the already-recognized effects of the Olathe Louisiana Pacific waferboard plant, should be analyzed to demonstrate their combined effects on the legislated Class I air quality of Black Canyon. The document should also be amended on page 97 to recognize the Louisiana Pacific plant as a major air pollution source, and on page 99 to recognize Black Canyon as a second NPS unit (in addition to Mesa Verde) where possible adverse air quality impacts may occur. A statement should also be included that emphasizes that any

AI-03 perceptible visibility impairment from the project on the Class I air quality is unacceptable.

GLOSSARY

Alkalinity -- Quantity and type of compounds in water which collectively cause a pH shift to alkalinity.

Animal Unit Month (AUM) - Amount of forage required to sustain a cow/calf unit for one month.

Areas of Critical Environmental Concern -- A BLM designation pertaining to areas where specific management attention is needed to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish or wildlife resources, or other natural systems or processes, or to protect human life and safety from natural hazards.

Benthic -- Of, pertaining to, or living in or on the bottom of a waterbody.

Bored Crossing -- A subterranean crossing of a road, railway, river, or other obstacle by a pipeline, transmission line, or other transport system.

Category (1, 2, 3A, 3B, 3C) -- Plants and animals being considered for Federal threatened and endangered status are placed in one of the following categories:

1. Available data on biological vulnerability and threat(s) support listing, but additional data are needed on precise habitat and/or critical habitat boundaries.

2. Available data indicate that listing may be appropriate, but substantial data on vulnerability and threats are not available to support immediate listing.

3A. Probably extinct.

3B. Taxa do not meet the U.S. Fish and Wildlife Service definition of species; taxa may be re-evaluated in the future.

3C. Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat; further research may indicate re-evaluation to Category 1 or 2.

Clean Air Act -- Federal legislation governing air pollution through emissions controls, modeling, permitting, monitoring, and enforcement.

Cogeneration -- Production of fuel-fired steam sold initially (usually to a utility) to generate electricity and subsequently to a private enterprise for product processing.

COMPLEX I -- An EPA modification to the Multiple Point Gaussian Dispersion Algorithm with Terrain Adjustment (MPTER) model for use in complex terrain.

Corridor -- For purposes of this environmental assessment, a wide strip of land within which a proposed linear facility could be located.

Cow-Calf Livestock Operation -- A livestock operation in which a base breeding herd of mother cows and bulls is maintained. The cows produce a calf crop each year, and the operation keeps some heifer calves from each calf crop for breeding herd replacements. The operation sells the rest of the calf crop between the ages of 6 and 12 months along with old or non-productive cows and bulls.

Crucial Habitat -- An area that is essential to the survival of any wildlife species sometime during its life cycle.

Crucial Winter Range -- That part of the winter range occupied by the majority of the animals during winters with normal snowpack and temperatures, and which is essential for winter survival.

GLOSSARY

Cultural Resource Inventory Classes:

Cultural resource includes archaeological and historic properties and traditional Native American Values.

Class I--Existing data inventory: an inventory study of a defined area designed (1) to provide a narrative overview (cultural resource overview) derived from existing cultural resource information and (2) to provide a compilation of existing cultural resource site record data on which to base the development of the BLM's site record system.

Class III--An intensive field inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a specified area. A Class III inventory is appropriate on small project areas, all areas to be disturbed, and primary cultural resource areas.

Cumulative Impact -- The impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

Desiccation -- The removal of moisture; to become dried up.

Diurnal -- Describes a cyclic event recurring daily; or the nature or habit of an organism to be active during daylight hours.

Emission -- Effluent discharge into the atmosphere, usually specified by mass per unit time.

Endangered Species -- Any animal or plant species in danger of extinction throughout all or a significant portion of its range.

Enhanced Oil Recovery -- Any enhanced recovery of oil undertaken after secondary operations. Since enhanced oil recovery usually follows water flooding, enhanced oil recovery generally is considered among the more exotic oil recovery processes, such as miscible displacement, thermal recovery, or chemical flooding.

Ephemeral Stream -- A stream that flows only in direct response to precipitation.

Federal Listed Species -- Animal or plant species listed by the USFWS as threatened or endangered.

Floodplain -- The flat ground along a stream that is covered by water when the stream overflows its banks at flood stages.

Forage -- All browse and herbaceous foods available to grazing animals, which may be grazed or harvested for feeding.

Fossil -- Any remains, trace or imprint of a plant or animal that has been preserved by natural processes in the earth's crust since some past geologic time.

Free Market -- An economic market operating by free competition.

Fugitive Dust -- Airborne particles emitted from any source other than through a stack (such as windblown dust).

Habitat -- A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Highest and Best Use -- Use of a resource (i.e., property) that maximizes its potential.

Historic -- Archaeological and archivally known sites related to the activities of non-native peoples, whether they be of Euro-American, Afro-American or Asian-American origin, in the period after the European discovery of the New World (ca. A.D. 1492).

Hydrostatic Test -- The closing of all openings and pumping water into the pipe at a pressure greater than the normal operating pressure to locate leaks or prove that there are no leaks.

Impact -- The change from an existing condition (baseline) caused by an action (such as construction or operation of a pipeline or facilities).

Incised Channels -- Deeply and sharply cut stream channels.

Increments -- Maximum allowable increases over baseline concentrations of pollutants covered by the Prevention of Significant Deterioration (PSD) provisions in Class I, II, and III areas.

Infrastructure -- The facilities, services, and equipment needed for a community to function. It includes roads, sewers, water lines, police and fire protection, and schools.

Immigrant -- Individual who moves into the project area from another part of the country.

Intermittent Stream -- A stream or reach of a stream that is below the local water table for at least some part of the year.

ISCLT - An EPA air pollution computer model (Industrial Source Complex Long-Term) used for monthly, seasonal, and annual averaging periods.

ISCST - An EPA air pollution computer model (Industrial Source Complex Short-Term) used for averaging periods 24-hours and less.

Lek -- An area where grouse gather for ritualistic display and breeding; also, a sage grouse strutting ground.

Level of Service (LOS) -- In transportation studies, a qualitative measure of traffic flow along a given road considering a variety of factors, including speed and travel time, traffic interruptions and freedom to maneuver. Levels of service are designated A through F -- A being a free-flow condition with low volumes at high speeds and F being a congested condition of low speeds and stop-and-go traffic. Intermediate levels describe conditions between these extremes. A level of service below C involves unstable to forced traffic flow in which a driver's freedom to select a speed is restricted and in which traffic stoppages cause congestion.

Liquefaction -- A change in the phase of a substance to the liquid state; usually a change from the gaseous to the liquid state, especially of a substance that is a gas at normal pressure and temperature.

Lithic Scatter -- A scatter of chipped stone materials, which may include fragments, flakes, or stone tools.

Mitigation -- The abatement or reduction of a construction or operation impact to the environment by (1) avoiding a certain action or parts of an action, (2) employing certain construction measures to limit

the degree of impact, (3) restoring an area to preconstruction conditions, (4) preserving or maintaining an area throughout the life of a project, (5) replacing or providing substitute resources to the environment, or (6) gathering archaeological and paleontological data before disturbance.

National Ambient Air Quality Standards (NAAQS) -- The allowable concentrations of air pollutants in the air specified by the Federal government in Title 40, Code of Federal Regulations, Part 50. The air quality standards are divided into primary standards (designed to protect the public health) and secondary standards designed to protect the public welfare.

National Natural Landmarks -- Sites designated by the Secretary of the Interior as containing the best representative examples of geologic features and natural communities composing the nation's natural history. Purpose of the designation is to encourage preservation of such sites through well-informed management and use, and consideration of these sites in public and private land use planning. Designation has no legal effect on land ownership, use, or management (National Park Service, Not Dated, National Natural Landmark Designation).

Navajo Natural Heritage Program -- A program designed to preserve and protect the natural resources on the Navajo Nation tribal lands.

Non-Conventional Energy Sources -- Energy sources not commonly used (e.g., solar energy).

Noxious Weed -- An undesirable weed species that can crowd out more desirable species.

Off-Highway Vehicle (OHV) -- A vehicle (including four-wheel drive, trail bikes, all-terrain vehicles, and snowmobiles but excluding helicopters, fixed-wing aircraft and boats) capable of traveling off road over land, water, ice, snow, sand, marshes and other terrain.

Paleontology -- A science dealing with the life of past geological periods as known from fossil remains.

Palustrine -- A system of wetlands that includes all non-tidal wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens.

Particulate Matter -- A particle of soil or liquid matter -- soot, dust, aerosols, fumes, and mist.

Perennial Stream -- A stream receiving water from both surface and underground sources that flows throughout the entire year.

pH -- A numeric value that gives the relative acidity or alkalinity of a substance on a 0 to 14 scale with the neutral point at 7. Values lower than 7 show the presence of acids, and values greater than 7 show the presence of alkalis.

Plan of Development -- A mandatory plan, developed by an applicant of a mining operation or construction project, that specifies the techniques and measures to be used during construction and operation of all project facilities on public land. The plan is submitted for approval to the appropriate Federal agency before any construction begins.

PM-10 - A pollutant (inhalable particulate matter) that refers to the amount of dust in the air less than 10 micrometers in size.

Prehistoric Sites -- Archaeological properties or values resulting from the activities of aboriginal peoples native to this region, and because dating is often difficult, extending up to the reservation era (ca. A.D. 1868).

GLOSSARY

Prevention of Significant Deterioration (PSD) -- A regulatory program limiting the amount air quality (i.e., nitrogen dioxide, sulfur dioxide, and total suspended particulates) will be allowed to deteriorate in an "attainment" or "unclassified" area. Under this program, geographic areas are divided into three classes, each allowing different increases in increments of total suspended particulates and sulfur dioxide concentrations.

PSD Class I--minimal additional deterioration in air quality (certain national parks and wilderness areas).

PSD Class II--moderate additional deterioration in air quality (most lands).

PSD Class III--greater deterioration for planned maximum growth (industrial areas).

Prime Farmland -- Land that is best suited for producing food, feed, forage, fiber and oilseed crops. The inventory of prime agricultural land is maintained by the U.S. Department of Agriculture, Soil Conservation Service.

Proposed Action -- Construction activities, alignments and other activities proposed by the applicant.

Reclamation -- The process of converting disturbed land to its former use or other productive uses.

Riparian -- Living or located on a river bank (e.g., riparian vegetation).

Riverine -- A system of wetlands that includes all wetland and deep water habitats contained within a channel that lacks trees, shrubs, persistent emergent, and emergent mosses or lichens.

Roost Tree -- Any tree used daily by one or more bald eagles during their normal seasonal use period. This includes trees used during the day as well as those used as night roosts, and also includes communal roost trees, which are used by large numbers of eagles.

Salinity -- A measure of the amount of dissolved salts in water.

SCREEN -- An EPA air pollution initial screening computer model which assumes simple terrain.

Scraper Trap -- A device on the pipeline used to receive a scraper pig or inside pipe inspection pig.

Scoping -- Determination of significant environmental issues and concerns related to a proposed action.

Sensitive Plant Species -- Plants whose populations are consistently small and widely dispersed or whose ranges are restricted to a few localities, such that any appreciable reduction in numbers, habitat availability, or habitat condition might lead toward extinction. Sensitive plants also include species rare in one locality but abundant elsewhere. See Endangered Species and Threatened Species.

Severe Winter Range -- That part of the range of a species where 90 percent of the individuals are located when annual snowpack is at its maximum in the 2 worst winters out of 10.

Soil Productivity -- The capacity of a soil to produce a plant or sequence of plants under a system or management.

Threatened Species -- Any plant or animal species likely to become endangered within the foreseeable future throughout all or part of its range.

Total Suspended Particulates (TSP) -- A pollutant that refers to the amount of dust in the air (generally less than 50 micrometers in size).

VALLEY - An initial screening application of the COMPLEX 1 EPA air pollution model for complex terrain.

Vegetation Type -- A plant community with distinguishable characteristics described by the dominant vegetation present.

VISCREEN - EPA visibility impact screening computer model.

Visual Resource Management Class (VRM Class) -- The degree of visual change acceptable within the existing characteristic landscape. An area's classification is based upon the physical and sociological characteristics of any given homogeneous area and serves as a management objective.

Wetland -- Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wilderness Study Area (WSA) -- A roadless area or island that has been inventoried and found to have wilderness characteristics as described in Section 603 of the Federal Land Policy and Management Act and Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891).

Winter Concentration Areas -- That part of the winter range of a species where densities are x percent greater than the surrounding winter range density during the same period used to define winter range in the average 5 winters out of 10.

Work Force -- The total number of workers on a specific project or group of projects. The work force is also referred to as direct employment and primary employment.

ABBREVIATIONS AND ACRONYMS

ACEC-RNA	Area of Critical Environmental Concern-Research Natural Area
ACHP	Advisory Council on Historic Preservation
AUM	animal unit month
BA	Biological Assessment
bbls	barrels of oil
Bcf	billion cubic feet
BCFD	billion cubic feet per day
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BuRec	Bureau of Reclamation
CCR	Colorado Code of Regulations
CDH	Colorado Department of Highways
CDOH	Colorado Department of Health
CDOW	Colorado Division of Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIG	Colorado Interstate Gas Company
CO	carbon monoxide
COE	U.S. Army Corps of Engineers
CPS	community profile statistics
dBA	Decibels - A weighted (to mimic human ear response)
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EC	electrical conductivity
EIS	environmental impact statement
El Paso	El Paso Natural Gas Company
EPA	U.S. Environmental Protection Agency
EVC	existing visual conditions
FERC	Federal Energy Regulatory Commission
forest plan	Forest Land and Resource Management Plan
gpm	gallons per minute
hp	horsepower
I-70	U.S. Interstate 70
kg	kilogram
L_{dn}	day-night average sound level
LOS	level of service
LP	Louisiana Pacific
MBF	thousand board feet
MCF	thousand cubic feet
MFP	Management Framework Plan
MMBF	million board feet
MMcfd	million cubic feet per day
Mountain Fuel	Mountain Fuel Supply Company
MP	Milepost
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Science
NEPA	National Environmental Policy Act
NGA	Natural Gas Act
NMGF	New Mexico Department of Game and Fish
NO_2	nitrogen dioxide
NO_3	nitrate
NOAA	National Oceanic and Atmospheric Administration

ABBREVIATIONS AND ACRONYMS

NOI	notice of intent
Northwest	Northwest Pipeline Corporation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	USDI - National Park Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PG & E	Pacific Gas and Electric
PGT	Pacific Gas Transmission
PJ	Pinyon-juniper
PM-10	inhalable particulate matter (less than 10 micrometers in size)
POD	plan of development
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
RA	Resource Area
REO	regional environmental overview
RMP	resource management plan
ROD	record of decision
ROW	right-of-way
RV	recreational vehicle
RVD	recreation visitor days
SAR	sodium adsorption ratio
SHPO	State Historic Preservation Officers
SO_2	sulfur dioxide
SRMA	special recreation management area
SWA	state wildlife area
TCF	trillion cubic feet
tpy	tons per year
TransColorado	TransColorado Gas Transmission Company
Transwestern	Transwestern Pipeline Company
TSP	total suspended particulates (generally less than 50 micrometers in size)
TUP	Temporary Use Permit
UMTRAP	Uranium Mine Tailings Remedial Action Project
USFS	USDA - U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VAC	visual absorption capability
VISCREEN	Visual Impact Screening
VQO	visual quality objectives
VRM	visual resource management
WCC	Woodward-Clyde Consultants
West Gas	Western Gas Supply
WSA	wilderness study area
$\mu g/m^3$	micrograms per cubic meter
°F	temperature in degrees Fahrenheit

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APPENDIX A

USFS UTILITY CORRIDOR ANALYSIS FOR PROPOSED FOREST LAND AND RESOURCE MANAGEMENT PLAN AMENDMENTS IN ASSOCIATION WITH THE PROPOSED TRANSCOLORADO GAS TRANSMISSION PROJECT

APPENDIX A

Grand Mesa, Uncompahgre, and Gunnison National Forests and San Juan National Forest

INTRODUCTION

This utility corridor analysis examines various TransColorado route segments that are not designated as utility corridors on National Forest System lands. The following report concludes that all pipeline corridor segments analyzed on the Uncompahgre and San Juan National Forests are suitable for designation as utility corridors. The Forest Service will determine which of the potential utility corridors will be designated in conjunction with the selection of the final TransColorado route. Once the final TransColorado route has been selected, a Forest Land and Resource Management Plan amendment will be required to designate and allow use of any new utility corridor.

The following report describes National Forest System lands analyzed with respect to the current environmental conditions, and the suitability of these specific conditions in supporting a utility corridor.

PURPOSE AND NEED

The need for a National Forest corridor analysis was established when proposed and alternative TransColorado routing alignments did not cross National Forest System lands within designated utility corridors (see Figure A-1). In order to approve the gas transmission project, and use the approved route, the Forest Service would be required to designate one or more new utility corridors. Such action is necessary as pipelines greater than 10 inches (in.) in diameter can only be constructed across National Forest System lands in designated utility corridors.

The purpose of this analysis is to enable the Forest Service to determine if the TransColorado proposed route, final EIS agency preferred route, and the draft EIS agency preferred route on National Forest System lands are suitable for designation as utility corridors. Typically, corridor designation requires the analysis of a future foreseeable development scenario that includes more than one pipeline or transmission line. The future foreseeable development scenario in this analysis included TransColorado and three other pipelines. The corridor width analyzed was estimated to be an average of 250 feet (ft) in width.

FOREST LAND AND RESOURCE MANAGEMENT PLAN AMENDMENT

Each National Forest's Forest Land and Resource Management Plan guides all natural resource management activities and establishes management standards and guidelines.

- The Rocky Mountain Regional Guide, which gives direction for Forest Land and Resource Management Plans (forest plans), requires that pipelines of 10 or more inches (in.) in diameter be in a designated utility corridor. (The proposed TransColorado pipeline is 22 in.)

- The Grand Mesa, Uncompahgre, and Gunnison National Forest's Plan, and San Juan National Forest Plan provide specific locations and direction for utility corridors in Management Area Prescription 1D (see Attachment No. 1).

- Three TransColorado Gas Transmission project routes being considered in the EIS are not in designated utility corridors. If one of these routes were selected, the permitted route would, therefore, not be consistent with the respective forest plan.

- Forest Service Manual 1922.51 states that one reason to amend a forest plan can be established by "Findings that existing or proposed permits, contracts, cooperative agreements, and other instruments authorizing occupancy and use are not consistent with the forest plan but should be approved (36 CFR 219.10(e))."

ISSUES

The issues raised during scoping and the draft EIS comment period are:

- The Forest Service has determined that the potential utility corridors should accommodate at least four pipelines similar to the proposed TransColorado pipeline (22-inch.). The Forest Service asserts that if a utility corridor is to be designated, it should accommodate a reasonable number of utilities proposed for possible future construction in that area. The four-pipeline corridor idea is based on the fact that there are now three pipelines in the Mancos corridor with one more proposed (TransColorado). The Forest Service feels it is not unreasonable to project that a route for four pipelines may be needed in the future, particularly with respect to recent oil and gas development in the Rocky Mountain region and the nation's increasing energy needs. TransColorado, however, does not necessarily agree that more than one pipeline should be considered for a utility corridor.

- Policies on utility corridor designation differ between the BLM and the FS. Pipelines are not always restricted to utility corridors on BLM lands and, when they are, the corridor does not necessarily have to accommodate more than one pipeline.

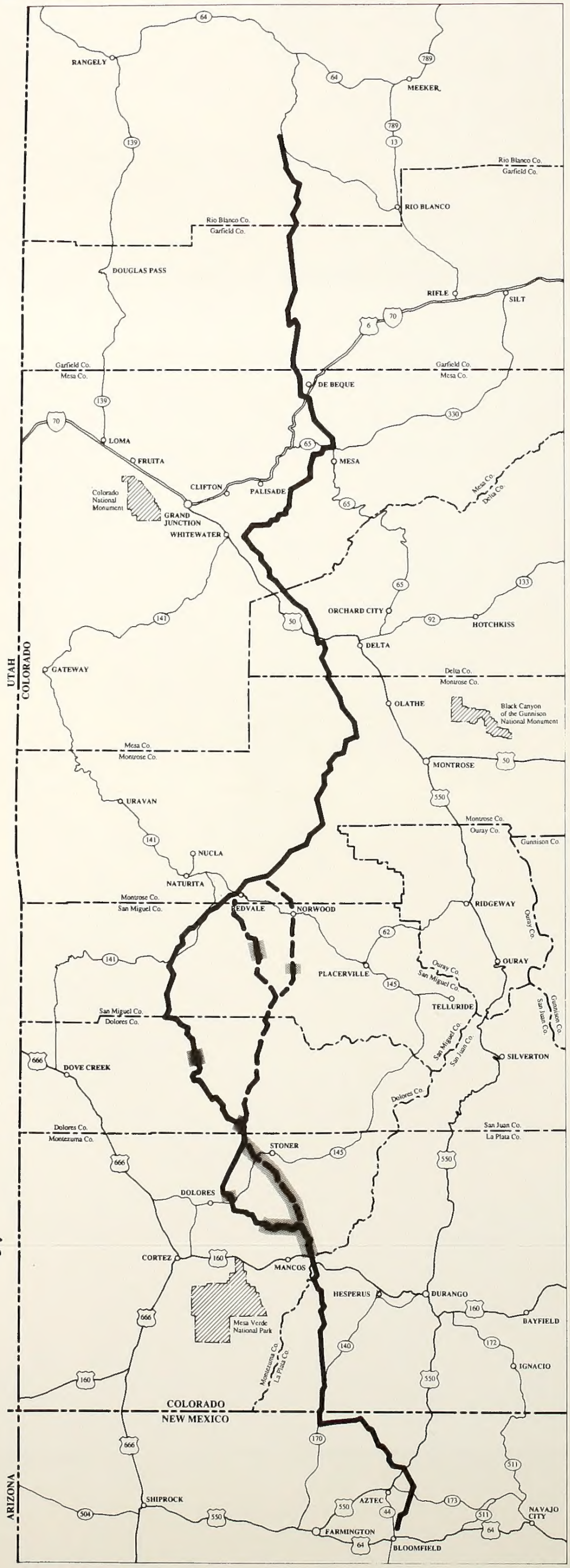
- Concern has been expressed about whether there is need for a new utility corridor in the Mancos Valley area. In response to private landowners' concerns, the Montezuma County commissioners passed a 1986 resolution "closing" the Mancos Valley pipeline corridor to further pipeline construction. Landowners expressed concern about the impacts the consecutive pipeline construction and operation had on their property and about pipeline companies' failure to obtain satisfactory reclamation results on private lands. The Mancos Valley pipeline corridor has continued to be considered for pipeline projects because in past studies and to date, it has been shown that there would be fewer impacts to natural resources in the existing corridor than in areas studied as route alternates around the Mancos Valley (USFS Powerline - Pipeline Corridor Study - Environmental Assessment, Montezuma County, CO - 1983). The perceived impact to private property and the human environment, however, would be greatest in the Mancos Valley corridor.

- Concern was raised about establishing a new utility corridor through National Forest System lands and private lands in the Mancos Valley. The TransColorado proposed route travels through portions of the San Juan National Forest near the Summit Ridge area, which is private land. Local residents and the Forest Service were concerned about establishing a new utility corridor in this area with two existing utility corridors nearby (existing Mancos Valley route and the 345-kV power line route).

- Concerns were expressed about slope stability on canyon crossings on the proposed route and the 345 kV power line route (draft EIS Mancos Valley East Variation and final EIS agency preferred route) in the Dolores-Mancos area. Geotechnical studies were started during the draft EIS comment period and completed in

NEW FOREST SERVICE UTILITY CORRIDORS

FIGURE A-1



North 0 4 8 16 miles

Proposed Route

Agency Preferred Routes

Forest Plan Amendment Needed

TRANSCOLORADO GAS TRANSMISSION PROJECT

the fall of 1991 at the request of the Forest Service to address this issue.

- Concern was expressed about establishing a new pipeline utility corridor east of Norwood along the Norwood-Dolores road (draft EIS agency preferred route). Public comment indicated that the proposed route west of the Norwood area was a better route if it was to be used in the future for additional pipelines.

POTENTIAL UTILITY CORRIDORS

The methodology used to analyze the corridors included:

- Establishment of an average 250-foot-wide corridor within a 1-mile-wide study area.
- Mapping and analyses of study areas with respect to environmental characteristics.
- Identification of hazardous areas and areas not suitable for utility development.
- Determination of suitability of corridors for designation as utility corridors.

For the purpose of the analysis it was assumed that construction techniques used and reviewed for the TransColorado project would be duplicated for future projects.

The locations of the study area corridors in relation to the TransColorado project are described below:

National Forest Crossings

Proposed Route (TransColorado Final EIS)

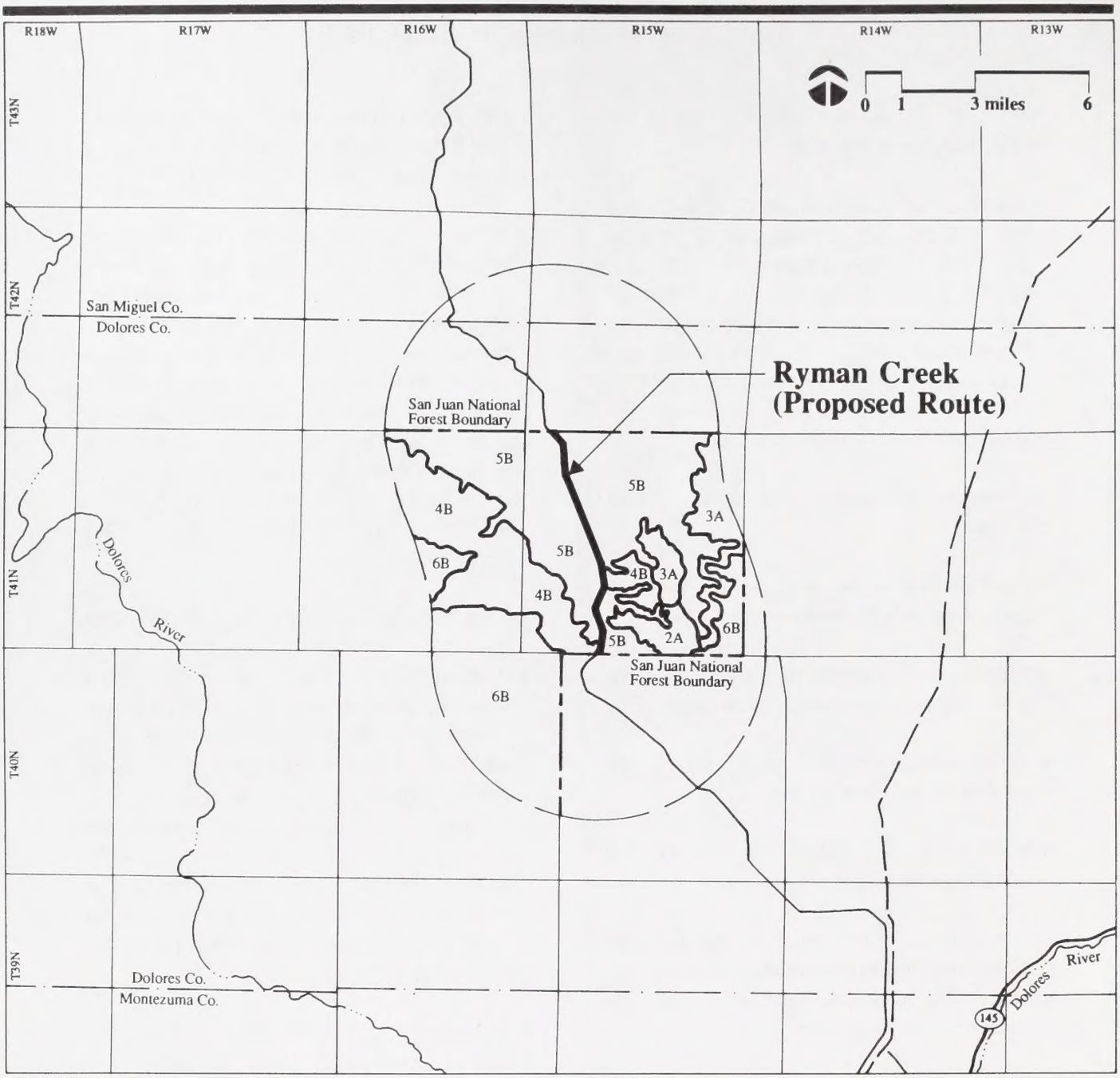
- Ryman Creek (San Juan National Forest) - MP 190.3 to MP 197.4. The proposed route in the Ryman Creek area (Sec. 6, 7, 8, 17, 20, 21, 28, 32, and 33; R15W; T41N). MP 206.7 to MP 210.5. The proposed route along Road No. 514 (Sec. 4, 5, and 6; R14E - Sec. 1; R15E; all T39N). (See Figures A-2 and A-3.)
- Dolores River to Mancos Hill (San Juan National Forest) - MP 222.9 to MP 225.9 and MP 234.4 to MP 249.3. The proposed route between the existing utility corridor (230-kV powerline) and the Dolores River Canyon crossing (Sec. 1; R15E - Sec. 6 and 7; R14E; all T37N). The proposed route starting southwest of Joe Moore Reservoir, running east and then south to Mancos Hill (Sec. 31, 32, 34, and 35; R13W; T37N - Sec. 31; R12W; T37N - Sec. 6, 7, 8, 17, 20, and 29; R12W; T36N). (See Figure A-3.)

Agency Preferred Route (TransColorado Final EIS)

- Modified Mancos Valley East (San Juan National Forest) MP 200.8 to 233.9 - Starting at the 230-kV power line utility corridor heading southeast generally following the 345-kV power line to the utility corridor on Mancos Hill. This route is now designated as a utility corridor for power lines only. From West Mancos River to Mancos Hill, the route is the same as the proposed route. This segment lies 0.25 to 1 mile (mi) to the west of the 345-kV power line (see Figure A-3).
- Redvale MP 168.3 to MP 173.2. The final EIS agency preferred route crossing the Uncompahgre National Forest south of Redvale (Sec. 10, 15, 23, 26, and 27, R14W, T44N (see Figure A-4).

Variations (TransColorado Final EIS)

- The draft EIS agency preferred route (MP 171.5 to MP 172.5) crosses the Uncompaghre National Forest south of Norwood, Colorado, in Section 23, T43N, R13W (Figure A-4).



Requiring New Corridor Designation

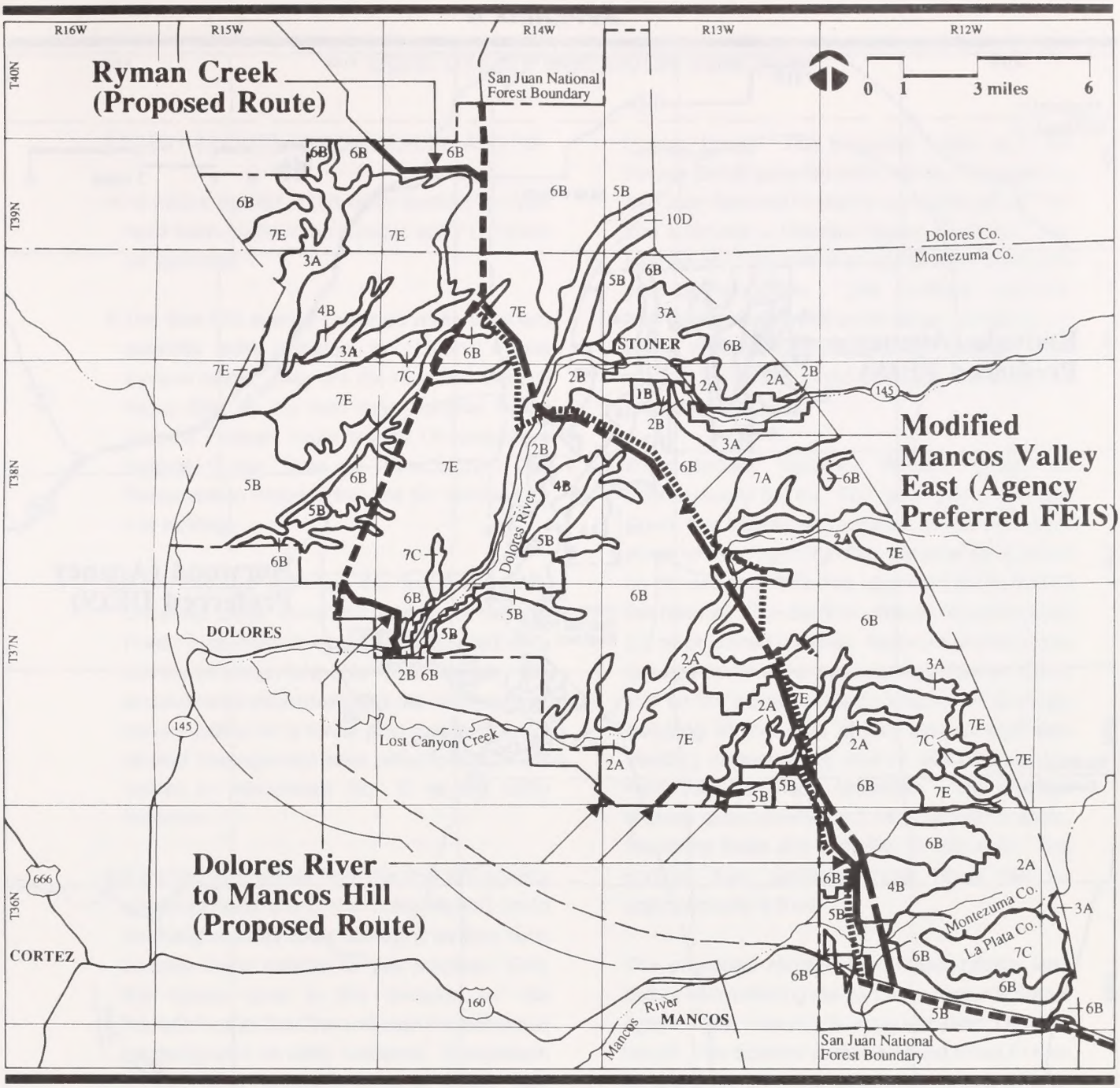
5B **Forest Plan Management Area**

POTENTIAL UTILITY CORRIDORS ON NATIONAL FOREST SYSTEM LANDS

San Juan National Forest

FIGURE A-2

TRANSCOLORADO GAS TRANSMISSION PROJECT



Requiring New Corridor Designation

Utility Corridor for 345 KV Transmission Line Only (Management Area 1D)

Designated Utility Corridor (Management Area 1D)

Modified Mancos Valley East (Agency Preferred FEIS)

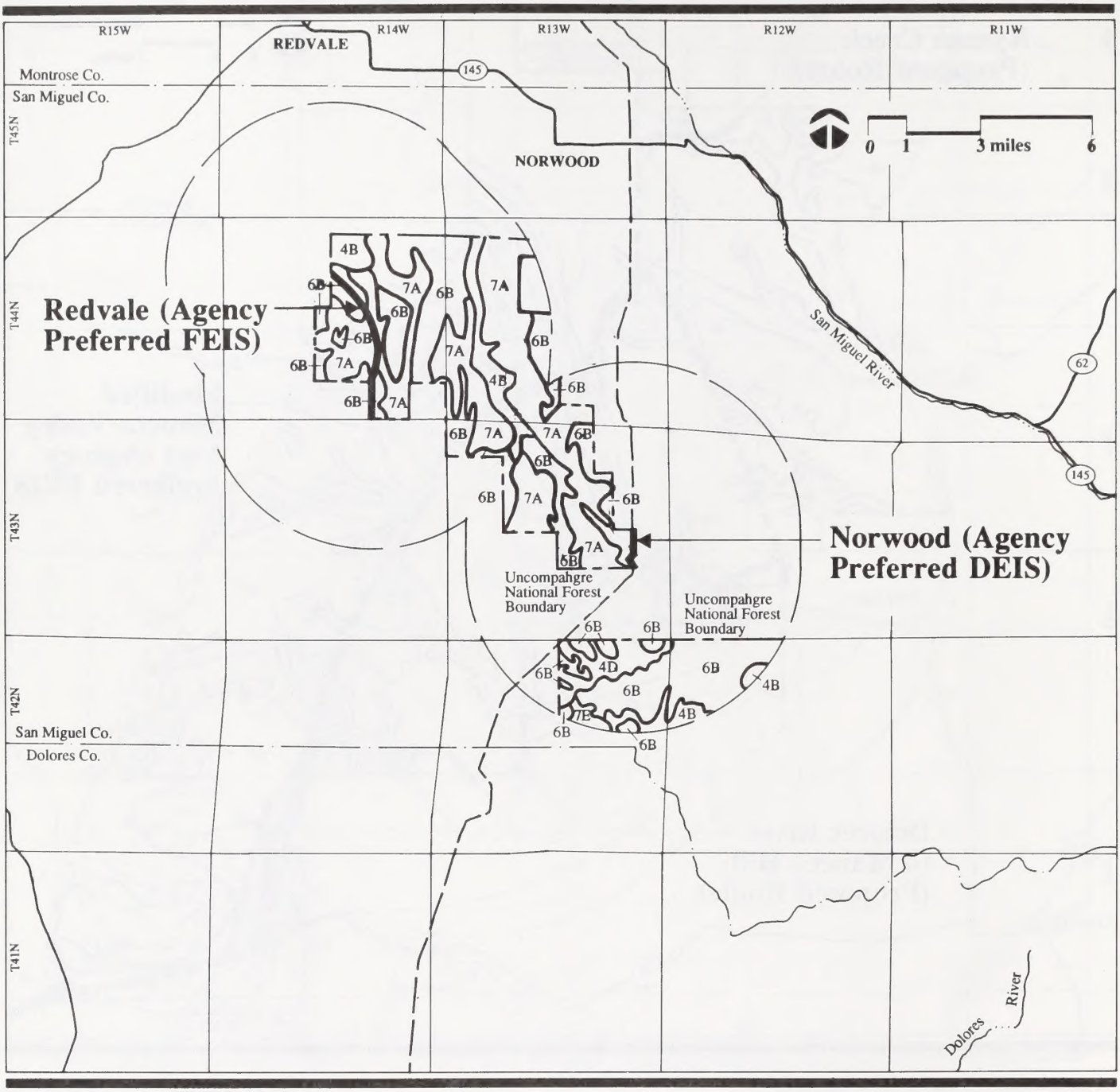
7E Forest Plan Management Area

POTENTIAL UTILITY CORRIDORS ON NATIONAL FOREST SYSTEM LANDS

San Juan National Forest

FIGURE A-3

TRANSCOLORADO GAS TRANSMISSION PROJECT



Requiring New Corridor Designation

6B Forest Plan Management Area

POTENTIAL UTILITY CORRIDORS ON NATIONAL FOREST SYSTEM LANDS

Uncompahgre National Forest

FIGURE A-4

TRANSCOLORADO GAS TRANSMISSION PROJECT

USFS UTILITY CORRIDOR ANALYSIS

FOREST SERVICE RECOMMENDED ACTION

- All routes studied in this utility corridor analysis have been found to be suitable utility corridors for pipelines.

- The final EIS agency preferred route uses two potential utility corridors on National Forest System lands. They are the modified Mancos Valley East on the San Juan National Forest and the Redvale route on the Uncompahgre National Forest. (See the TransColorado Gas Transmission Project Final EIS for rationale for this routing.)

- If the decision is to use the final EIS agency preferred route, these two routes on National Forest System lands would be designated utility corridors through forest plan amendments. The amendments would designate the utility corridor route location on a forest plan map and apply revised management area prescription ID (as shown in Attachment No. 1) to the utility corridors.

- If the decision differs from the final EIS agency preferred route, any of the routes studied could be designated as utility corridors, as they have all been found suitable for that purpose. Only the routes used in the decision for the TransColorado Gas Transmission Project would be designated as utility corridors. Designation of the utility corridors through forest plan amendments would be done concurrently with the final routing decision for the project.

AFFECTED ENVIRONMENT

The following describes the affected environment for potential utility corridor areas on National Forest System lands. For a more complete description of the TransColorado Gas Transmission Project, see Chapter 3 of the final EIS.

Ryman Creek. The proposed route near the Ryman Creek potential utility corridor crosses the San Juan National Forest for approximately 9.7 mi and is located in Dolores County, Colorado. The land cover in this area is predominantly shrubland and pinyon-juniper. The corridor traverses approximately 159 ft of wetlands as identified from aerial photo interpretation. In addition, the corridor crosses approximately 1.65 mi of rocky/shallow soils.

The corridor parallels Ryman Creek for approximately 5.0 mi. The main stem of Ryman Creek has incised and evolved to the advanced stage where vegetation has become established on the sediment that has aggraded in the bed of the channel. The corridor crosses approximately 0.9 mi of incised channel. Major mass movement features occur in the headwaters of Ryman Creek and on the slopes of Glade Mountain. Geologic mapping of the area shows several east-west trending normal faults, one of which forms the north face of Glade Mountain. The corridor crosses approximately 0.2 mi of landslide areas. No active faults are identified in this area. The corridor then parallels Forest Road 240 for approximately 4.0 mi.

The proposed route then crosses private land before encountering the San Juan National Forest again. This crossing is approximately 3.9 mi in length. The corridor parallels Forest Road 514 for its entire length. The land cover in this area is predominantly grassland/rangeland with some ponderosa pine and shrubland.

According to the San Juan National Forest Land and Resource Management Plan (1983), approximately 55 percent of the corridor crosses forest plan management area 5B, 40 percent crosses management area 6B, 4 percent crosses management area 4B, and 25 percent crosses lands other than National Forest. Management area 5B emphasizes forage and cover on wildlife winter ranges. Livestock grazing is compatible

but is managed to favor wildlife habitat. Forested land is suitable for timber production. New roads other than short-term, temporary roads are located outside the management area. Short-term roads are obliterated within one season after intended use. Existing local roads are closed and new motorized recreation use is managed to prevent unacceptable stress on big game animals during the primary big game use season. Management area 4B emphasizes wildlife habitat management for one or more indicator species. Roaded natural recreational opportunities are provided along forest arterial and collector roads, but vegetation treatment and human activities are managed to provide optimum habitat for the selected species. Forested land in this management area is also suitable for timber production.

Management area 6B emphasizes livestock grazing through use of intensive grazing management systems and investments in structural and non-structural range improvements. Conflicts between livestock and wildlife are resolved in favor of livestock. Forested lands in portions of the area are not suitable for timber production. Dispersed recreational opportunities vary between semi-primitive non-motorized and roaded natural. The portion of the corridor that is located parallel to Forest Road 514 is within a very high visual constraint area and does not cross any known geologic hazards.

Dolores River to Mancos Hill. The proposed route crosses the San Juan National Forest for approximately 11.4 mi and is located in Montezuma and La Plata Counties, Colorado. The land cover crossed by the corridor is predominantly ponderosa pine with some shrubland, agricultural, and stream/riparian areas. The corridor traverses approximately 453 ft of wetland at the Dolores River hay meadow and the Dolores River crossing. In addition, the corridor crosses approximately 1 mi of rocky/shallow soils.

The corridor crosses Colorado State Highway (SH) 145 approximately 2.5 mi east of Dolores, Colorado. The corridor crosses approximately 0.7 mi of a very high visual constraint area where it crosses SH 145 and the Dolores River. The corridor also crosses approximately 0.8 mi of bald eagle winter range at the Dolores River and 0.2 mi of landslide area north of the Dolores River.

The route then crosses the San Juan National Forest and intermixed private lands between MP 234.4 to MP 249.2. Land cover crossed by this corridor includes grassland/rangeland, ponderosa pine, conifer, shrubland, and stream/riparian. The corridor crosses approximately 80 ft of wetlands at Chicken Creek, approximately 250 ft at the West Mancos River, approximately 80 ft at the Middle Mancos River, and approximately 50 ft at the East Mancos River. The corridor crosses approximately 2.2 mi of landslide areas and approximately 1.3 mi of Mexican spotted owl range.

According to the San Juan National Forest Land and Resource Management Plan (1983), the corridor crosses forest plan management areas 2A (3 percent), 4B (13 percent), 5B (32 percent), 6B (19 percent), and 7E (32 percent). The corridor also crosses approximately 6.4 mi of lands other than National Forest. Management areas 4B, 5B, and 6B were already described. The corridor crosses approximately 0.3 mi of management area 2A. Management area 2A emphasizes semi-primitive motorized recreational opportunities, such as snowmobiling, four-wheel driving, and motorcycling both on and off roads and trails in a naturally appearing environment. Management activities are visually subordinate. Management area 7E emphasizes production and utilization of wood-fiber for saw timber on gentle slopes. Management activities are not evident or remain visually subordinate along primary roads and trails. Dispersed recreational opportunities are available. Forested lands in portions of the area are not suitable for timber production.

Modified Mancos Valley East. The utility corridor crosses the San Juan National Forest and some lands other than National Forest for approximately 26.2 mi, and is located in Montezuma and La Plata Counties, Colorado. This potential pipeline utility corridor is now designated as a utility corridor for power lines, with the exception of a 0.25- to 1-mile westward deviation from the power line between West Mancos River to Mancos Hill where the route is the same as the Dolores River to Mancos Hill route.

Land cover crossed includes conifer forest (45 percent), shrubland (33 percent), ponderosa pine (7 percent), grassland/rangeland (5 percent), and stream/riparian (4 percent). The corridor crosses a total of approximately 1,100 ft of wetlands. In addition, the corridor crosses approximately 6.0 mi of rocky/shallow soils. Geologic hazards crossed by the corridor include approximately 0 mi of landslide areas and approximately 1.8 mi of the Jurassic Morrison formation (Class I Paleontological Resource area).

According to the San Juan National Forest Land and Resource Management Plan (1983), approximately 54 percent of the corridor crosses management area 6B, 18 percent crosses 7E, 8 percent crosses 2A, 8 percent crosses 5B, 8 percent crosses 4B, 3 percent crosses 2B, and 16 percent crosses lands other than National Forest. Management areas 2A, 4B, 5B, 6B, and 7E were previously described. Management area 2B emphasizes rural and roaded natural recreational opportunities, such as driving for pleasure, viewing scenery, and picnicking along sensitive travel routes while enhancing or maintaining scenic qualities inherent in a forest environment. Forested land is suitable for timber production. Approximately 2.4 mi of the corridor cross moderate visual constraint areas. Finally, the corridor crosses approximately 1.0 mi of bald eagle winter range, 3.4 mi of Mexican spotted owl range, and 4.2 mi of key elk range.

Redvale. This route segment crosses the Uncompahgre National Forest for approximately 4.9 mi (MP 168.3 to 173.2). The crossing is located in San Miguel County, Colorado, north of Miramonte Reservoir and southwest of Norwood. The land cover consists of 67 percent mountain shrub land (3.3 mi) while crossing 1.6 mi (33 percent of ponderosa pine and less than .01 mi (25 ft) of forested wetlands. The entire crossing consists of shallow/rocky soils with 0.2 mi of slope between 15 and 40 percent. This segment crosses 0.25 mi of potential Mexican spotted owl habitat and 4.9 mi of high-sensitivity cultural resources.

According to the Grand Mesa, Uncompahgre, and Gunnison National Forest, and Resource Management Plan (1991) approximately 3 mi of the corridor (61 percent) cross management area 6B and 39 percent, or 1.9 mi, crosses management area 7A. Management area 6B was discussed previously. Management area 7A emphasizes wood fiber production on saw timber lands with slopes less than 40 percent. Motorized and roaded recreation is also provided for.

The Draft EIS Agency Preferred Route. This potential utility corridor crosses the Uncompahgre National Forest for approximately 1.0 mi (MP 171.5 to MP 172.5) and is located in San Miguel County, Colorado. Land cover crossed includes shrubland (42 percent), ponderosa pine (33 percent), and grassland/rangeland (25 percent). The corridor crosses approximately 15 ft of wetlands at the crossing of Brewster Creek. In addition, the corridor crosses 1.2 mi of rocky/shallow soils.

According to the Grand Mesa, Uncompahgre, and Gunnison National Forest Land and Resource Management Plan (1991), the corridor crosses forest plan management area 6B (100 percent). Management area 6B emphasizes livestock grazing. Semi-primitive non-motorized, semi-primitive motorized, and roaded natural

recreational opportunities are provided. The entire corridor is within a very high visual constraint area and is also classified as bald eagle winter range. Finally, there are no known geologic hazards within the corridor.

ENVIRONMENTAL CONSEQUENCES

The following describes the environmental consequences of using potential utility corridors on National Forest System lands. For a more complete description in relation to the TransColorado Gas Transmission Project, see Chapter 3 of the final EIS.

Impacts were identified based on an analysis of each route being suitable for a utility corridor for four pipelines. Acreage calculations were based on four pipelines similar to TransColorado's 22-inch pipeline in an average 250-foot-wide utility corridor within a 1-mile-wide study area. It is assumed that future pipelines to be placed in the potential utility corridors will use the same construction techniques and environmental protection measures agreed to by TransColorado. The impact analysis focused on the types of changes that will remain after all environmental protection measures are applied.

Environmental evaluation factors used in this analysis focused on topography (side slope and ascent/descent slope angles), geologic hazards, visual constraints, land use, land management, and natural resources (e.g., land cover, soils, wildlife, wetlands, and threatened or endangered species).

Topography

The width of the construction right-of-way (ROW) must be increased as the angle of the slope perpendicular to the route of the pipeline increases in steepness. The primary construction goal is to maintain the ROW as level as possible with respect to the slope. As side slopes steepen, more cut and fill are required to maintain a level work space for trenching and pipe laying equipment. If additional pipelines are constructed next to an existing line, each pipeline must have a level work space. If the adjacent side slope increases in steepness, each successive pipeline requires more cut and fill to achieve the required construction work space width. For the purposes of this analysis, side slopes of 6 percent or less are considered to be routine construction (i.e., a standard 75-foot construction ROW width can be achieved under most conditions); side slopes in excess of 6 percent require non-routine construction (e.g., cut and fill, and benching) and additional mitigation measures. If all ROW cut-and-fill slopes are recontoured upon completion of pipeline installation, rock fragments are reincorporated into the trench, and/or waste rock is disposed of at an approved off-site location, then no long-term changes in side slope topography would result from construction.

Pipelines can be constructed up the face of extremely steep slopes. However, the abilities of equipment to trench and transport loads become increasingly impaired as the slope angle steepens. Under very steep conditions, equipment must be supported by cables from above to maintain a proper working position. For the purposes of this analysis, ascent/descent slopes of 40 percent or less are considered to be routine construction. On slopes steeper than 40 percent, the complexity of laying pipeline substantially increases. The requirements for stabilization of the ROW to prevent soil erosion are also more extensive. Requirements for special slope stabilization will demand additional, site-specific studies. Long-term topographic impacts would occur where special slope stabilization measures are required beyond normal soil protection measures (e.g., benching, rip rap).

Geologic Hazards

The geologic hazard requiring analysis is the potential for unstable slopes that could damage the pipeline; conversely, the activities associated with pipeline construction could destabilize previously stable slopes as the result of clearing and grading. Of specific concern are canyon crossings in certain sedimentary geologic formations that are known to be prone to landslides.

At the request of the Forest Service, TransColorado conducted geotechnical studies at the major canyon crossings for the proposed and final EIS agency preferred routes from the Dolores River to Mancos Hill in Montezuma County (SHB 1991). Specifically, the proposed route was examined at the Dolores River, Lost Canyon Creek, Chicken Creek, West Mancos River, and Middle Mancos River. The final EIS agency preferred route was examined at the Dolores River, Lost Canyon Creek, Turkey Creek, Chicken Creek, and West and Middle Mancos River crossings. These studies included surface observations, shallow borings, and seismic refraction surveys. Laboratory testing was also conducted to determine soil strength. The scope of this investigation was to: 1) determine whether landslide hazards are of sufficient magnitude to require pipeline re-routing to meet the utility corridor requirement; 2) determine additional measures to ensure slope stability and protect adjacent natural resources. Results of the studies indicated that all routes would be suitable as utility corridors without causing unnecessary risk if recommended mitigation measures were imposed.

Visual

The Forest Service's landscape management concept, as defined and implemented through the Visual Management System, must be considered for any linear facility that requires ground clearing and aboveground facilities. The Visual Quality Objective (VQO) designations are the baseline standards against which proposed landscape modifications are judged and impact levels established.

The visual analysis identified areas of low, moderate, and high constraint. This was accomplished by comparing the visual contrast ratings (high, moderate, or low) to VQO designations. Areas of high constraint were identified as those areas where high or moderate visual contrast ratings occurred within a Retention area, and where high visual contrast occurred within a Partial Retention area.

This analysis was further refined to include a very high constraint area. All Retention areas were automatically included because of the limitations on visual modification within this zone. It is not reasonable to assume that any combination of mitigation measures, however exceptional, would be able to reduce visual impacts of such a broad utility corridor to acceptable levels in a Retention area visible from sensitive viewpoints. Partial Retention areas with high visibility and little ability to adjust location to minimize visibility were also given a rating of very high because of the doubtful ability to reduce impacts of this magnitude to acceptable levels. It should be recognized, however, that a relocation that minimizes impacts as seen from one area may prove more visible from another. Visibility considerations, as well as other resource values, would have to be taken into account before assuming a suitable adjustment in alignment could be accomplished. Areas of very high and high constraint crossed by the potential utility corridor that cannot be avoided or mitigated through other means represent long-term impacts.

Land Management/Land Use

Management area 1D provides for utility corridors (see existing and proposed management area prescriptions for the respective National Forests in Attachment 1). The management emphasis in management area 1D is for major oil and gas pipelines, major water transmission and slurry pipelines, electrical transmission lines, and transcontinental telephone lines. In management area 1D certain designated areas (e.g., wilderness, research natural areas, wild and scenic rivers) must be avoided; other special management areas should not be crossed unless mitigation measures are available. Potential impacts to recreation resources and/or transportation, other than potential visual impacts already discussed, were considered to be minor and short-term. An unavoidable adverse impact would result if the designation of a utility corridor were incompatible with the management goals of the management areas through which the corridor passes.

Natural Resources

Natural resources, such as land cover, soils, wildlife, wetlands, and threatened or endangered species, represent constraints that can generally be mitigated as part of project planning. However, there may be opportunities to reduce impacts to these resources by avoidance, seasonal restrictions, and rehabilitation. The clearing of forested lands and riparian/wetland vegetation is considered a long-term, unavoidable adverse impact. Construction impacts to bald eagles and Mexican spotted owls could include disturbance of nests resulting in nest abandonment and death of young birds. This would be a long-term impact because of the rarity of these nesting species. However, potential impacts to nesting bald eagles would be eliminated by prohibiting construction activities within 0.5 mi of any nesting area between April 15 and August 15. Potential impacts to Mexican spotted owls would be reduced by conducting nesting surveys of potential habitat prior to construction. To prevent potential impacts to the black-footed ferret, all prairie dog towns of sufficient size (according to U.S. Fish and Wildlife Service guidelines) would be surveyed for black-footed ferrets prior to construction.

Impacts

Table A-1 quantifies impacts as identified by the pipeline utility corridor analysis on National Forest System lands.

ANALYSIS CONCLUSIONS

All potential utility corridor routes studied are suitable for designating as utility corridors for pipelines on National Forest System lands. All potential problem areas, such as steep canyon crossings, constraining topography, and other natural resource concerns, have been reviewed in the field and mitigating measures developed to prevent them. A review of the impacts (Table A-1) does not show any environmental conditions that would preclude using the studied routes as utility corridors.

The TransColorado Gas Transmission Project Final EIS agency preferred route, which would use the potential Modified Mancos Valley East and Redvale utility corridor routes, will help resolve some issues raised in this analysis. By using these routes, concerns about using substantial amounts of private land and establishing a totally new utility corridor in the Mancos Valley are addressed and the new location west of Norwood places the route in a more suitable location for future pipelines. Field studies have clarified concerns about potential unstable slopes, and realignments of the routes have avoided constrained terrain that may not have been suitable for utility corridor development.

USFS UTILITY CORRIDOR ANALYSIS

The decision for the TransColorado Gas Transmission project will determine the exact routes to be designated as utility corridors. This analysis shows that all routes are suitable to serve as utility corridors and the decision maker can consider all routes.

TABLE A-1

Summary of Impact Comparisons of the TransColorado Pipeline Corridor Analyses on National Forest System Lands

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Air Quality	Fuel combustion from pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline mi per day for an estimated 7 construction days.	Fuel combustion from pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline mi per day for an estimated 8 construction days.	Fuel combustion from pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline mi per day for an estimated 19 construction days.	Fuel combustion from pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline mi per day for an estimated 3 construction days.	Fuel combustion from pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline mi per day for an estimated 1 construction day.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Topography	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on 0.4 mi or 11 ac for the long term (greater than 50 years). The corridor would disturb 7.4 mi or 223 ac of slopes less than 15 percent and 2.4 mi or 72 ac on slopes between 15 and 40 percent.	Cut-and-fill actions to establish a level ROW on steep side terrain slope would decrease the amount of natural slope contour. The corridor would disturb 10 mi or 303 ac of slopes less than 15 percent, and 1.2 mi or 31 ac on slopes between 15 and 40 percent.	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour along 3.2 mi (97 ac) for the long term (greater than 50 years). Cut-and-fill actions on side slopes greater than 40 percent would be required only where topographic constraints limit other route options. These slope alterations represent less than 1 percent of the construction ROW area. The corridor would disturb 22.5 mi or 682 ac of slopes less than 15 percent, and 0.5 mi or 15 ac of slopes between 15 and 40 percent.	Cut-and-fill actions to establish a level ROW on steep side terrain slope would decrease the amount of natural slope contour for the long term (greater than 50 years). Cut-and-fill actions on side slopes greater than 40 percent would be required only where topographic constraints limit other route options. These slope alterations represent less than 1 percent of the construction ROW area. The corridor would disturb 4.7 mi or 142 ac of slopes less than 15 percent, and 0.2 mi or 6 ac of slopes between 15 and 40 percent.	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years). The corridor would disturb 36 ac of slopes less than 6 percent.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Leasable Minerals	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.
Mineral Materials	No direct corridor ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions is expected to be small.	No direct corridor ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions is expected to be small.	No direct corridor ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions is expected to be small.	No direct corridor ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions is expected to be small.	No direct corridor ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions is expected to be small.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Water Quality	Trenching, pipe laying, and backfilling in 1 minor perennial stream would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe laying and backfilling in 2 major streams and 2 perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe laying, and backfilling in 1 major river, 2 major streams, and 4 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	No major rivers, major streams, or minor perennial streams are crossed.	No major rivers, major streams, or minor perennial streams are crossed.
Municipal Water Supplies	Construction of the pipeline would not cross a water supply stream.	Construction of the pipeline would not cross a water supply stream.	Construction of the pipeline would not cross a water supply stream.	Construction of the pipeline would not cross a water supply stream.	Construction of the pipeline would not cross a water supply stream.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Wetlands	Pipeline construction would decrease available wetland areas by crossing 159 ft and disturbing .09 ac of forested wetlands. The disturbance of forested wetlands would be long-term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 4.5 ac of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by crossing 453 ft and disturbing 2.6 ac of forested wetlands. The disturbance of forested wetlands would be long-term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 4 ac of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 0.01 mi or 0.3 ac of wet meadows/haylands and 0.2 mi or 6 ac of forested wetlands. The disturbance of wet meadows/haylands would be short-term, and the disturbance of forested wetlands would be long-term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 6.0 mi or 182 ac of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 25 ft or 0.1 ac of forested wetlands. The disturbance of forested wetlands would be long-term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction.	Pipeline construction would decrease available wetland areas by disturbing .09 ac of forested wetlands. The disturbance of forested wetlands would be long-term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 4.5 ac of wetland soils disturbed by construction.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Soils	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 348 ac. On areas of saline/alkaline soils (0 ac), steep ascent/descent slopes $\geq$ 15 percent (63 ac), or rocky, shallow soils (15 ac) revegetation may be more difficult. Over the long term, wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those now occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 534 ac. On areas of saline/alkaline soils (0 ac), steep ascent/descent slopes $\geq$ 15 percent (31 ac), or rocky, shallow soils (270 ac) revegetation may be more difficult. Over the long term, wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those now occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to preconstruction levels within 2 years. Some increased erosion would be expected on the 26.2 mi (794 ac) of FS land potentially disturbed acres. On areas of saline/alkaline soils (0 ac), steep ascent/descent slopes $\geq$ 15 percent (3.7 mi or 112 ac), or rocky, shallow soils (6 mi or 182 ac) revegetation may be more difficult. Over the long term, wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those now occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the 4.9 mi (149 ac) of FS land potentially disturbed acres. On areas of saline/alkaline soils (0 ac), steep ascent/descent slopes $\geq$ 15 percent (0.2 mi or 6 ac), or rocky, shallow soils (4.9 mi or 149 ac) revegetation may be more difficult. Over the long term, wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those now occurring on	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 36 ac. On areas of saline/alkaline soils (0 ac), steep ascent/descent slopes $\geq$ 15 percent (0 ac), or rocky, shallow soils (36 ac) revegetation may be more difficult. Over the long term, wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those now occurring on adjacent, undisturbed soils.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Wood Products	Clearing the ROW would decrease forest resources by approximately 6 ac of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of 51 ac of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forest resources by approximately 297 ac of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of no acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forest resources on 13.0 mi, disturbing up to 394 ac of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of no acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forest resources on 1.6 mi, disturbing up to 48 ac of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of no acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forest resources by approximately 15 ac of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of no acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Livestock	Clearing the ROW would decrease available grazing land by approximately 3.9 AUMs on ROW in management area 6B. This would be a short-term impact of less than 1 percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 2.2 AUMs on ROW in management area 6B. This would be a short-term impact of less than 1 percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 14 AUMs on ROW in management area 6B. This would be a short-term impact of less than 1 percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 3 AUMs on ROW in management area 6B. This would be a short-term impact of less than 1 percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 1 AUM on ROW in management area 6B. This would be a short-term impact of less than 1 percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Wildlife	ROW clearing would result in vegetation decreases in 189 ac of key elk range and 6 ac of key mule deer habitat. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. Long-term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in vegetation losses for 194 ac of elk range and 90 ac of key mule deer range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing for this alternative would result in vegetation losses on 4.2 mi or 127 ac of key elk range. Clearing would impact approximately 3.4 mi or 103 ac of potential Mexican spotted owl habitat. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing for this alternative would result in no vegetation losses on key wildlife range. Clearing would impact approximately 0.25 mi or 8 ac of potential Mexican spotted owl habitat. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would not impact key mule deer range, key elk range, key antelope range, or sage grouse breeding/nesting range.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Fisheries	The pipeline would be constructed across 1 minor perennial stream. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of streambed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 2 major streams and 2 minor perennial streams. All 4 are classified as Class 1 coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of streambed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 1 major river, 2 major streams, and 4 minor perennial streams. Of these, 5 are classified as Class 1 coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of streambed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Cultural Resources	The proposed route would traverse 9.3 mi of high-sensitivity areas and 1.9 mi of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	The proposed route would traverse 11.5 mi of high-sensitivity areas and 5.1 mi of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	The proposed route would traverse 4.0 mi of high-sensitivity areas and 20.0 mi of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	The proposed route would traverse 4.9 mi of high-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	The proposed route would traverse 0.4 mi of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Visual Resources	There would be no high, short- or long-term visual impacts along the ROW.	Approximately 0.7 mi of high, short- or long-term visual impacts along the ROW would be unavoidable adverse impacts that would exceed the visual management objectives for these areas.	There would be no high, short- or long-term visual impacts along the ROW. There would be 2.4 mi of moderate visual impacts.	There would be no high or moderate short- or long-term visual impacts along the ROW.	There would be no high, short- or long-term visual impacts along the ROW.
Transportation	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of approximately 12.5 mi of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of approximately 7.5 mi of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 25.5 mi of dirt/gravel road.	Construction would result in possible traffic delays during road construction and would not require grading of dirt/gravel roads.	Construction would result in possible traffic delays during road construction and would not require grading of dirt/gravel roads.
Solid Hazardous Waste	An estimated 164 cubic yards (yd^3) of construction-related solid waste would be generated for each pipeline and disposed of in currently operating landfills along the pipeline route.	An estimated 253 yd^3 of construction-related solid waste would be generated for each pipeline and disposed of in currently operating landfills along the pipeline route.	An estimated 373 yd^3 of construction-related solid waste would be generated for pipeline construction of FS lands. This waste would be disposed of in currently operating landfills along the pipeline route.	An estimated 12 yds^3 of construction-related solid waste would be generated for pipeline construction of FS lands. This waste would be disposed of in currently operating landfills along the pipeline route.	An estimated 17 yd^3 of construction-related solid waste would be generated for each pipeline and disposed of in currently operating landfills along the pipeline route.

TABLE A-1 (Continued)

Areas of Impact	Ryman Creek (MP 190.1 to MP 197.6 and MP 206.5 to MP 210.6) San Juan National Forest	Dolores River to Mancos Hill (MP 222.9 to MP 225.9 and MP 234.4 to MP 249.2) San Juan National Forest	Modified Mancos Valley East (MP 201.0 to MP 209.4 and MP 211.4 to MP 233.5) San Juan National Forest	Redvale (MP 168.3 to MP 173.2) Uncompahgre National Forest	DEIS Agency Preferred Variation (MP 171.5 to MP 172.5) Uncompahgre National Forest
Current Forest Management Units* (mi/ac) *These units would be redesignated 1D for utility corridors.	This route crosses the following USFS management area: 4B - 0.4 mi 121 ac 5B - 5.4 mi 164 ac 6B - 3.9 mi 118 ac Non-FS Land 1.9 mi (17 ac)	This route crosses the following USFS management areas: 2A - 0.3 mi 9 ac 4B - 1.5 mi 46 ac 5B - 3.7 mi 112 ac 6B - 2.2 mi 67 ac 7E - 3.7 mi 112 ac Non-FS Land 6.4 mi (58 ac)	This route crosses the following USFS management areas: 2A - 2.2 mi 67 ac 2B - 1.0 mi 30 ac 4B - 2.0 mi 61 ac 5B - 2.2 mi 67 ac 6B - 14.2 mi 430 ac 7E - 4.6 mi 139 ac Non-FS lands 4.3 mi 130 ac	This route crosses the following USFS management areas: 6B - 3 mi 91 ac 7A - 1.9 mi 58 ac	This route crosses the following USFS management areas: 6B - 1.0 30 ac
Socioeconomic Conditions	The proposed route would require 9.7 mi of National Forest System land to be designated as a new multiple utility corridor management unit 1D.	The proposed route would require 11.4 mi of National Forest System land to be designated as a new multiple utility corridor management unit 1D.	The proposed route would require 26.2 mi of National Forest System land to be designated as a new multiple utility corridor management unit 1D.	The proposed route would require 4.9 mi of National Forest System land to be designated as a new multiple utility corridor management unit 1D.	The proposed route would require 1 mi of National Forest System land to be designated as a new multiple utility corridor management unit 1D.

ATTACHMENT NO. 1

MANAGEMENT PRESCRIPTION 1D

(Provide transmission corridors which blend with the local environment.)

Management emphasis is for major oil and gas pipelines, major water transmission and slurry pipelines, electrical transmission lines, and transcontinental telephone lines. Management activities within these linear corridors strive to be compatible with the management goals of the management areas through which they pass.

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Visual Resource Management	01 Design and construct utilities to harmonize with the landscape. (0295) (1D) 02 Manage for adopted VQO. (2022GM) (1D) 03 Implement visual resource management, as outlined in the Forest Management Requirements. (2023GM) (1D)	a. Use "National Forest Landscape Management", Volume 2-Utilities for principles and concepts. (6153) (1D)
Dispersed Recreation Management	01 Manage dispersed recreation opportunities consistent or compatible with adjacent management areas. (0297) (1D)	
Wildlife Habitat Improvement and Maintenance	01 Manage wildlife and fish habitat consistent or compatible with adjacent management areas. (0296) (1D)	
Range Resource Management	01 Manage the range resource consistent or compatible with adjacent management areas. (0298) (1D)	
Silvicultural Prescriptions	01 Manage forest cover types consistent or compatible with adjacent management areas. Provide required electrical clearances and minimize the visual impact of the utility right-of-way. (0299) (1D)	
Special Use Management (Non-Recreation)	01 Transportation and utility corridors must be compatible with the Management Area goals through which they pass. (2162GM) (1D)	a. Corridors shall be designed using the definitions and process established in FSM 1922.51. (8160GM) (1D)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Rights-of-Way and Land Adjustments	01 Design, construct and maintain electrical transmission lines in accordance with the rules of the National Electrical Safety Code, ANSI. Unless otherwise indicated on the plan and profile drawings, all construction and clearances of the transmission line shall conform to the latest edition of the National Electrical Safety Code., ANSI issued by the American National Standards Institute. (0473) (1D) 02 All design, materials and construction, operation, maintenance and termination practices employed in connection with oil pipelines shall be in accordance with safe and proven engineering practices and shall meet or exceed the following: a. U.S.A. Standard Code for Pressure Piping, ANSI B 31.4 "Liquid Petroleum Transportation system". b. Department of Transportation Regulations, 49 CFR, Part 195, "Transportation of Liquids by Pipeline". (0474) (1D) 03 All design, materials and construction, operation, maintenance and termination practices employed in connection with gas pipelines shall be in accordance with safe and proven engineering practices and shall meet or exceed the following: a. Department of Transportation Regulations, ASME Gas Piping Standards Committee, "Guide for Gas Transmission and Distribution Piping System" (3rd Edition, April 1976). b. 49 CFR, Part 192, "Transportation of Natural and other Gas by Pipelines: Minimum Federal Safety Standards". (0475) (1D)	
	04 All location placement of utility facilities in corridors shall consider the following: **a. The most efficient use of the total space available for all potential facilities in the general corridor, particularly in constrained terrain where the minimum separation space will be used.** **b. Throughout the corridor, facilities should be as consolidated as possible to allow for additional facilities and to minimize disturbance while still meeting visual management objectives.** **c. Exclusive use of ROWs should not be granted. Compatible facilities may be located in a shared ROW, particularly in sections of the corridor that have constrained terrain.**	(Addition to existing Forest Plan prescriptions.)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Fire Planning and Suppression	01 Provide a level of protection from wildfire that is cost efficient and that will meet management objectives for the area. (2223GM) (1D)	a. Prompt control of all wildfires. (8220GM) (1D)
Fuel Treatment	01 Maintain fuel conditions which permit fire suppression forces to meet fire protection objectives for the area. (0113) (1D)	a. Reduce or otherwise treat all fuels so the potential fireline intensity will not exceed 100 BTU's/sec/ft (8138) on 90% of the days during the regular fire season. (8224GM) (1D)

PRESCRIPTION FOR MANAGEMENT AREA 1D

(Provides for utility corridors.)

MANAGEMENT PRESCRIPTION SUMMARY

General Description and Goals:

Management emphasis is for major oil and gas pipelines, major water transmission and slurry pipelines, electrical transmission lines, and transcontinental telephone lines. Management activities within these linear corridors strive to be compatible with the management goals of the management areas through which they pass.

B. MANAGEMENT REQUIREMENTS

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Diversity on National Forests and National Grasslands (A00)	01 Require right-of-way clearing and revegetation consistent or compatible with diversity objectives of adjacent management areas. (0038SJ) (01D)	
Visual Resource Management (A04)	01 Design and construct utilities to harmonize with the landscape. (0295) (01D)	a. Use "National Forest Landscape Management", Volume 2-Utilities for principles and concepts. (6153) (01D)
Dispersed Recreation Management (A14 and 15)	01 Manage dispersed recreation opportunities consistent or compatible with adjacent management areas. (0297) (01D)	
Wildlife Habitat Improvement and Maintenance (G02, 04, 05 and 06)	01 Manage wildlife and fish habitat consistent or compatible with adjacent management areas. (0296) (01D)	a. Limit right-of-way clearing width to a maximum of 600 feet to prevent adverse effects on wildlife. (7254SJ) (01D)

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
Range Resource Management (D02)	01 Manage the range resource consistent or compatible with adjacent management areas. (0298) (01D)	
Silvicultural Prescriptions (E03, 06 & 07)	01 Manage forest cover types consistent or compatible with adjacent management areas. Provide required electrical clearances and minimize the visual impact of the utility right-of-way. (0299) (01D) 02 Utilize firewood material using both commercial and noncommercial methods. (0147) (01D)	
Rights-of-way and Land Adjustments (J02, 13, 15, 16, 17, and 18)	01 Design, construct and maintain electrical transmission lines in accordance with the rules of the National Electrical Safety Code, ANSI. Unless otherwise indicated on the plan and profile drawings, all construction and clearances of the transmission line shall conform to the latest edition of the National Electrical Safety Code, ANSI issued by the American National Standards Institute. (0473) (01D) 02 All design, materials and construction, operation, maintenance and termination practices employed in connection with oil pipelines shall be in accordance with safe and proven engineering practices and shall meet or exceed the following: a. U.S.A. Standard Code for Pressure Piping, ANSI B 31.4, "Liquid Petroleum Transportation system." b. Department of Transportation Regulations, 49 CFR, Part 195, "Transportation of Liquids by Pipeline". (0474) (01D)	

MANAGEMENT ACTIVITIES	GENERAL DIRECTION	STANDARDS & GUIDELINES
	03 All design, materials and construction, operation, maintenance and termination practices employed in connection with gas piplines shall be in accordance with safe and proven engineering practices and shall meet or exceed the following: a. Department of Transportation Regulations, ASME Gas Piping Standards Committee, "Guide for Gas Transmission and Distrubution Piping System" (3rd Edition, April 1976). b. 49 CFR, Part 192, "Transportation of Natural and other Gas by Pipelines: Minimum Federal Safety Standards." (0475) (01D)	
	04 All location placement of utility facilities in corridors shall consider the following: **a. The most efficient use of the total space available for all potential facilities in the general corridor, particularly in constrained terrain where the minimum separation space will be used.** **b. Throughout the corridor, facilities should be as consolidated as possible to allow for additional facilities and to minimize disturbance while still meeting visual management objectives.** **c. Exclusive use of ROWs should not be granted. Compatible facilities may be located in a shared ROW, particularly in sections of the corridor that have constrained terrain.**	(Addition to existing Forest Plan prescriptions.)
Transportation System Management (L01 & 20)	01 Manage the transportation system and travel off development roads and trails consistent or compatible with adjacent management areas. (47808J) (01D)	
Fire Planning and Suppression (P01)	01 Provide a level of protection from wildfire that is cost-efficient and that will meet objectives of adjacent management areas. (50338J) (01D)	

APPENDIX B

ROUTE VARIATIONS FOR THE TRANSCOLORADO PROPOSED ROUTE AND THE AGENCY PREFERRED ROUTE

APPENDIX B

INTRODUCTION

As explained in Chapter 1, numerous pipeline routes have been studied in selecting a TransColorado proposed route and a final EIS agency preferred route. Chapter 1, Route Selection Process section, and accompanying Figures 1-5 through 1-8 explain and illustrate the evolution of the routes that are presented in this final EIS. Chapter 1 and accompanying figures present all the routes considered to date, those routes that have been eliminated from further consideration, and those routes that remain under consideration.

Chapter 2 presents only the proposed route and final EIS agency preferred route. The remaining routes that are still under consideration as possible replacements to corresponding sections of the proposed route or final EIS agency preferred route are presented in this appendix. These routes are termed "route variations." This appendix also includes the draft EIS agency preferred route.

Although the TransColorado proposed and the final EIS agency preferred routes have tentatively been identified, no decision has been made regarding the final routing. Therefore, the impacts associated with construction of the route variations are also included in this appendix so that additional analysis will not be necessary should a decision be made to replace a section of the TransColorado proposed route or final EIS agency preferred route with a route variation.

The construction, operation, maintenance, and abandonment processes would be the same as those described in Chapter 2. The general protection measures described in Chapter 2 would also be employed by TransColorado should any of these routes be chosen as the approved route.

There are four locations in which a route variation would replace a corresponding section of the TransColorado proposed route or final EIS agency preferred route. For purposes of discussion, these locations are termed segments. Segment 1 is in the Grand Valley area. Segment 1 begins at a point near Roan Creek and ends at Whitewater. Segment 2 begins near the San Miguel River crossing and ends near Stoner. Segment 3 is in the Mancos Valley area. It begins at Stoner and ends at Mancos Hill. Segment 4 is in the New Mexico area. It begins near Stoner and ends at Bloomfield, New Mexico.

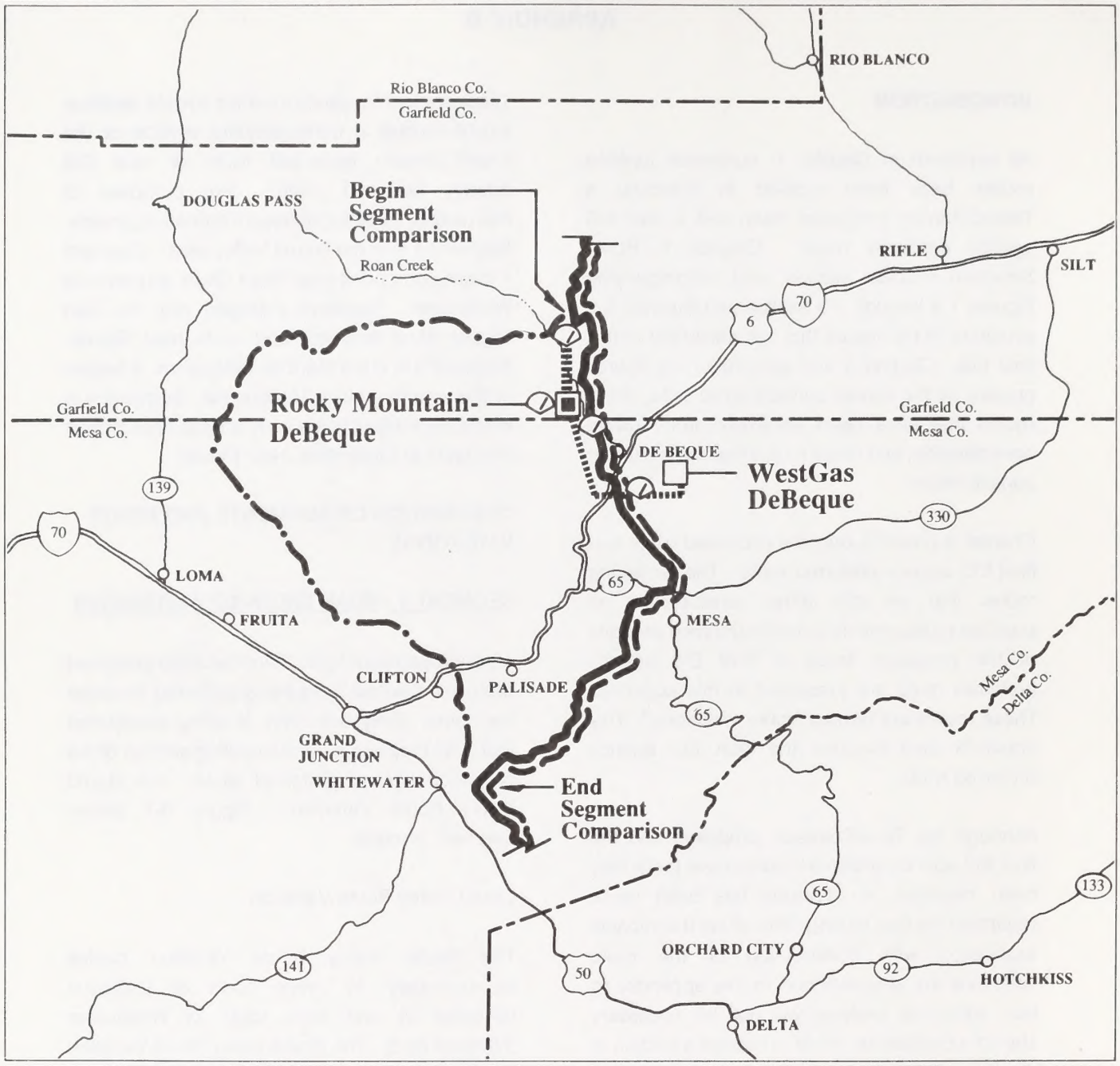
DESCRIPTION OF SEGMENTS AND ROUTE VARIATIONS

SEGMENT 1 - ROAN CREEK TO WHITEWATER

Through Segment 1, the TransColorado proposed route and the final EIS agency preferred route are the same. Only one route is being considered that could replace a corresponding section of the proposed/agency preferred route: the Grand Valley Route Variation. Figure B-1 shows Segment 1 routes.

Grand Valley Route Variation

The Grand Valley Route Variation begins approximately 10 miles north of DeBeque (Milepost 32) and ends south of Whitewater (Milepost 85.3). The Grand Valley Route Variation is an alternative to crossing steep slopes on portions of the Grand Mesa and avoiding the Palisade and Grand Junction Municipal Watersheds. It also would avoid the Gilman Gulch and DeBeque areas. The Grand Valley Route Variation would require the construction of an additional 15.8 miles of 12-inch and 8-inch pipeline (Figure B-1) which would connect the DeBeque-WestGas meter station via the Rocky Mountain-DeBeque compressor station. Following is a comparison of the Grand Valley



Proposed Pipeline Route

Final EIS
Agency Preferred Route

Grand Valley Variation

12 Inch Interconnecting Pipeline

8 Inch Interconnecting Pipeline

Existing Compressor Station, Pipeline Interconnection and Meter Station

Proposed Compressor Station

Proposed Meter Station

SEGMENT #1 GRAND VALLEY VARIATION

FIGURE B-1

TRANSCOLORADO GAS TRANSMISSION PROJECT

Route Variation and the TransColorado proposed route/agency preferred route.

Pipeline System Components. Table B-1 compares the land ownership and parallel facilities of the Grand Valley Route Variation to the corresponding segment of the TransColorado proposed route. the Grand Valley Route Variation would be 19 miles longer than the corresponding TransColorado proposed route. This segment would parallel at least one existing right-of-way for 32 miles compared to 30 miles paralleled by the corresponding segment of the TransColorado proposed route.

Natural Resource Requirements. The Grand Valley Route Variation would require 485 cubic yards of trench padding material in excess of that required for the corresponding TransColorado proposed route . There is one source of water for hydrostatic testing and dust control located on this segment compared to three on the corresponding TransColorado proposed route. Table B-2 compares the occurrence of natural resources crossed by the various routes.

Infrastructure Requirements. Infrastructure would be the same as that discussed for the TransColorado proposed route with the exception of access road needs. Approximately 30 miles of private and public roads would require upgrade for implementation of the Grand Valley Route Variation compared to approximately 33 miles of upgrade on the corresponding TransColorado proposed route.

SEGMENT 2 - SAN MIGUEL RIVER TO STONER

Through Segment 2, the TransColorado proposed route and the final EIS agency preferred route are different (Figure B-2). One-third of the TransColorado proposed route in Segment 2 would be constructed on private land, while over two-thirds of the final and draft EIS agency preferred routes would be constructed on private land. Through Segment 2, only one route is being considered that could replace a corresponding section of either the proposed route or the final EIS agency preferred route: the draft EIS agency preferred route.

Draft EIS Agency Preferred Route

The draft EIS agency preferred route could replace the corresponding section of either the proposed route or the final EIS agency preferred route (Figure B-2). The draft EIS agency preferred route would be largely constructed on private land. After crossing the San Miguel River, the route turns southeast and then south passing to the east of the town of Norwood.

Pipeline System Components. Table B-3 compares land ownership and parallel facilities through Segment 2. Implementation of the draft EIS agency preferred route through Segment 2 would be approximately 9 miles shorter than the TransColorado proposed route and one mile shorter than the final EIS agency preferred route. The route parallels at least one other utility ROW for 24 miles compared to 21.5 under the TransColorado proposed route and 22.5 miles under the final EIS agency preferred route. The Rocky Mountain Natural Gas Maverick Compressor station would be required for implementation of the draft EIS agency preferred route. The Big Gypsum and Redvale compressor stations are not feasible.

Natural Resource Requirements. The draft EIS agency preferred route would require 216 fewer cubic yards of trench padding material than would the TransColorado proposed route and 24 fewer cubic yards than the final agency preferred route. This route variation would cross one more water source compared to the corresponding TransColorado proposed route and one less compared to the final EIS agency preferred route. Table B-4 compares the occurrences of natural resources along the various routes.

APPENDIX B

TABLE B-1

Land Ownership and Parallel Facilities
Segment 1 Routes

	TransColorado Proposed/Agency Preferred Route	Grand Valley Variation
Length	53 miles	72 miles
Ownership-Private	59 percent	35 percent
Ownership - BLM	41 percent	65 percent
Total Disturbance	481 acres	645 acres
Parallel Facilities	30 miles	32 miles
Road Improvements	33 miles	30 miles
Existing Compressor Stations	1	0
Proposed Compressor Stations	1	1
Proposed Meter Stations	2	1
Proposed Block Valve	4	5

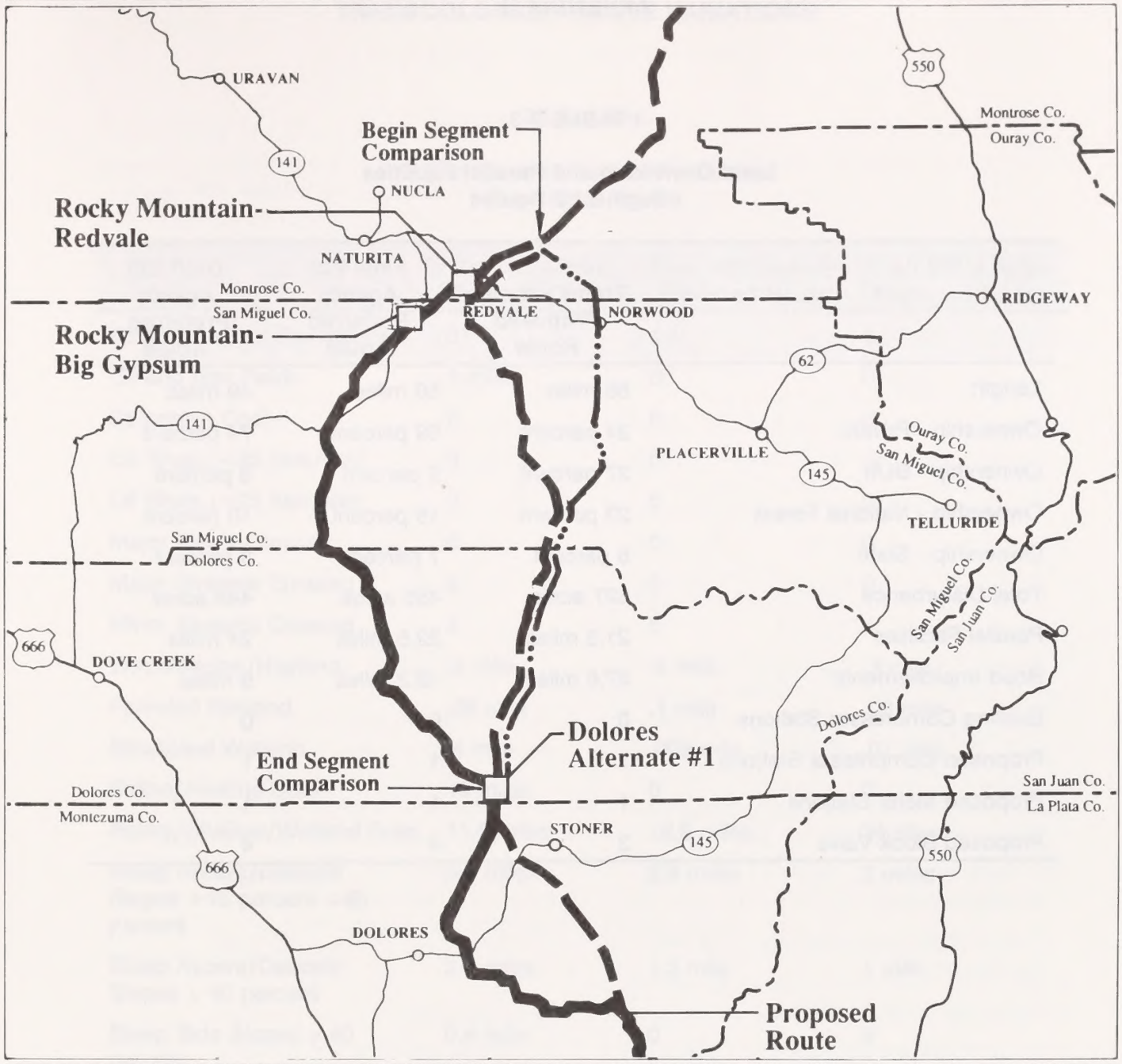
TABLE B-2

Occurrence of Natural Resources
Segment 1 Routes

	TransColorado Proposed/Agency Preferred Route	Grand Valley Variation
Paleontological Formations	13 miles	4 miles
Oil and Gas Fields	9 miles	0
Coalbed Methane	28 miles	15 miles
Coal Formations	28 miles	15 miles
Strippable Coal	0	0
Oil Shale (<25 gallons/ton)	0	18 miles
Oil Shale (>25 gallons/ton)	5 miles	2 miles
Major Rivers Crossed	1	1
Major Streams Crossed	2	0
Minor Streams Crossed	1	2
Wet Meadow/Hayland	.6	0
Forested Wetland	.02 mile	.2 mile
Shrubland Wetland	0.2 mile	.1 mile
Saline/Alkaline Soils	18.5 miles	49 miles
Rocky/Shallow/Wetland Soils	23 miles	48 miles
Steep Ascent/Descent Slopes >15 percent <40 percent	4.2 miles	1.3 miles
Steep Ascent/Descent Slopes ≥ 40 percent	2.4 miles	2.3 miles
Steep Side Slopes ≥ 40 percent	0	.6 mile
Active Landslides Areas	2.8 miles	0
Landslide Deposits	7.9 miles	1 mile
Incised Channels	9 miles	26 miles
Prime Farmlands	0 miles	3.1 miles
Farmland of Statewide Importance	7.8 miles	4.6 miles
Agricultural Lands	7.8 miles	8 miles
Rangeland	30.6 miles	59 miles

TABLE B-2 (CONTINUED)

	TransColorado Proposed/Agency Preferred Route	Grand Valley Variation
Timber Lands	1 mile	1 mile
Pinyon Juniper Woodlands	11.6 miles	2.1 miles
AUMs - Livestock	51 AUMs	70 AUMs
Key Deer Range	24.5 miles	17.5 miles
Key Elk Range	9 miles	19 miles
Key Grouse Range	4.7 miles	5.5 miles
Key Antelope Range	0	25 miles
Historical Raptor Nests	3 nests	10 nests
Bald Eagle Winter Range	3 miles	1 mile
Great Blue Heron Rookery	1 mile	0
Potential Black-Footed Ferret Habitat	0	31 miles
Threatened and Endangered Plant Habitat	25 miles	18 miles
Cultural Resources Projected Sites within 75-foot ROW	12	14
Cultural Resources High Sensitivity Areas	39 miles	21 miles
Cultural Resources Medium Sensitivity Areas	10 miles	23 miles
Visual Contrasts (High)	1.2 miles	5.8 miles
Visual Contrasts (Moderate)	6 miles	5 miles
Irrigation Ditches	5	10
Major Rail Crossings	1	1
Federal Highway Crossings	1	2
State Highway Crossings	1	0
Residences within 500 feet of ROW	5	49
Solid and Hazardous Waste	720 (cubic yards)	1,000 (cubic yards)



Proposed Pipeline Route

Final EIS Agency Preferred Route

Draft EIS Agency Preferred Route

Proposed Compressor Station

SEGMENT #2 TRANSCOLORADO PROPOSED ROUTE, FINAL EIS & DRAFT EIS AGENCY PROPOSED ROUTES (Norwood Area)

FIGURE B-2

TRANSCOLORADO GAS TRANSMISSION PROJECT

TABLE B-3

Land Ownership and Parallel Facilities
Segment 2 Routes

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Length	58 miles	50 miles	49 miles
Ownership - Private	34 percent	69 percent	74 percent
Ownership - BLM	37 percent	9 percent	8 percent
Ownership - National Forest	23 percent	15 percent	10 percent
Ownership - State	6 percent	7 percent	8 percent
Total Disturbance	527 acres	455 acres	445 acres
Parallel Facilities	21.5 miles	22.5 miles	24 miles
Road Improvements	27.6 miles	12.2 miles	9 miles
Existing Compressor Stations	0	0	0
Proposed Compressor Stations	1	1	1
Proposed Meter Stations	1	1	1
Proposed Block Valve	3	4	4

TABLE B-4

Occurrences of Natural Resources Segment 2 Routes

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Paleontological Formations	0	1.1	0
Oil and Gas Fields	1 mile	0	0
Strippable Coal	0	0	0
Oil Shale (<25 bbls/ton)	0	0	0
Oil Shale (>25 bbls/ton)	0	0	0
Major Rivers Crossed	0	0	0
Major Streams Crossed	0	0	0
Minor Streams Crossed	3	5	4
Wet Meadow/Hayland	.5 mile	.5 mile	.3 mile
Forested Wetland	.05 mile	.1 mile	.08 mile
Shrubland Wetland	.4 mile	.008 mile	.01 mile
Saline/Alkaline Soils	16 miles	0	0
Rocky/Shallow/Wetland Soils	11.5 miles	18.8 miles	24 miles
Steep Ascent/Descent Slopes >15 percent <40 percent	3.8 miles	2.5 miles	3 miles
Steep Ascent/Descent Slopes ≥ 40 percent	2.4 miles	1.3 mile	1 mile
Steep Side Slopes ≥ 40 percent	0.4 mile	0	0
Active Landslide Areas	.8 mile	1 mile	1 mile
Landslide Deposits	0	5.1 miles	9.5 miles
Incised Channels	27.9 miles	5.7 miles	0
Prime Farmlands	0	0	0
Farmland of Statewide Importance	0	0.6 mile	2.4 miles
Agricultural Lands	0.4 mile	1.1 mile	3.6 miles
Rangeland	42.3 miles	34.9 miles	33.8 miles

TABLE B-4 (CONTINUED)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Timber Lands	1 mile	6.0 miles	4.2 miles
Pinyon Juniper	14.3 miles	6.2 miles	7.4 miles
AUMs - Livestock	51 AUMs	48 AUMs	49 AUMs
Key Deer Range	12.1 miles	8.5 miles	0
Key Elk Range	26.9 miles	5 miles	4 miles
Key Grouse Range	10 miles	7.8 miles	6.6 miles
Key Antelope Range	0	0	0
Active Raptor Nests	2 nests	0	0
Bald Eagle Winter Range	30 miles	24.2 miles	23 miles
Great Blue Heron Rookery	0	0	0
Potential Black-Footed Ferret Habitat	44.6 miles	6.1 miles	3 miles
Threatened and Endangered Plant Habitat	10.5 miles	0	0
Cultural Resources Projected Sites within 75-foot ROW	8 sites	116 sites	56
Cultural Resources High Sensitivity Areas	36 miles	26 miles	24 miles
Cultural Resources Medium Sensitivity Areas	8 miles	0	10 miles
Visual Contrasts (High)	0	3.2 miles	11 miles
Visual Contrasts (Moderate)	4.0 miles	1.2 miles	16 miles
Irrigation Ditches	2	2	3
Major Rail Crossings	0	0	0
Federal Highway Crossings	0	0	0
State Highway Crossings	2	1	1
Residences within 500 feet of ROW	2	5	6
Solid and Hazardous Waste	728 (cubic yards)	628 (cubic yards)	700 (cubic yards)

Infrastructure Requirements. Infrastructure requirements would remain unchanged with the exception of access routes. Approximately 18.6 fewer access road miles would require upgrading or other improvements than would the TransColorado proposed route and 3.2 fewer miles compared to the final EIS agency preferred route.

Work Force Requirements and Schedule. Work force requirements would be the same as those for the corresponding TransColorado proposed route and final EIS agency preferred route. Construction would be approximately 6 days shorter than the TransColorado proposed route and one day shorter than the final EIS agency preferred route.

SEGMENT 3 - STONER TO MANCOS

Through Segment 3, the TransColorado proposed route and the final EIS agency preferred route are different (Figure B-3). Approximately two-thirds of the TransColorado proposed route would be constructed in the San Juan National Forest, outside an existing utility corridor, bypassing much of the private land. The final EIS agency preferred route would be constructed mostly on San Juan National Forest.

Through Segment 3, one of two routes could replace a corresponding section of either the TransColorado proposed route or the final EIS agency preferred route: The draft EIS agency preferred route and the Mancos Valley Central Route Variation (Figure B-3).

Draft EIS Agency Preferred Route

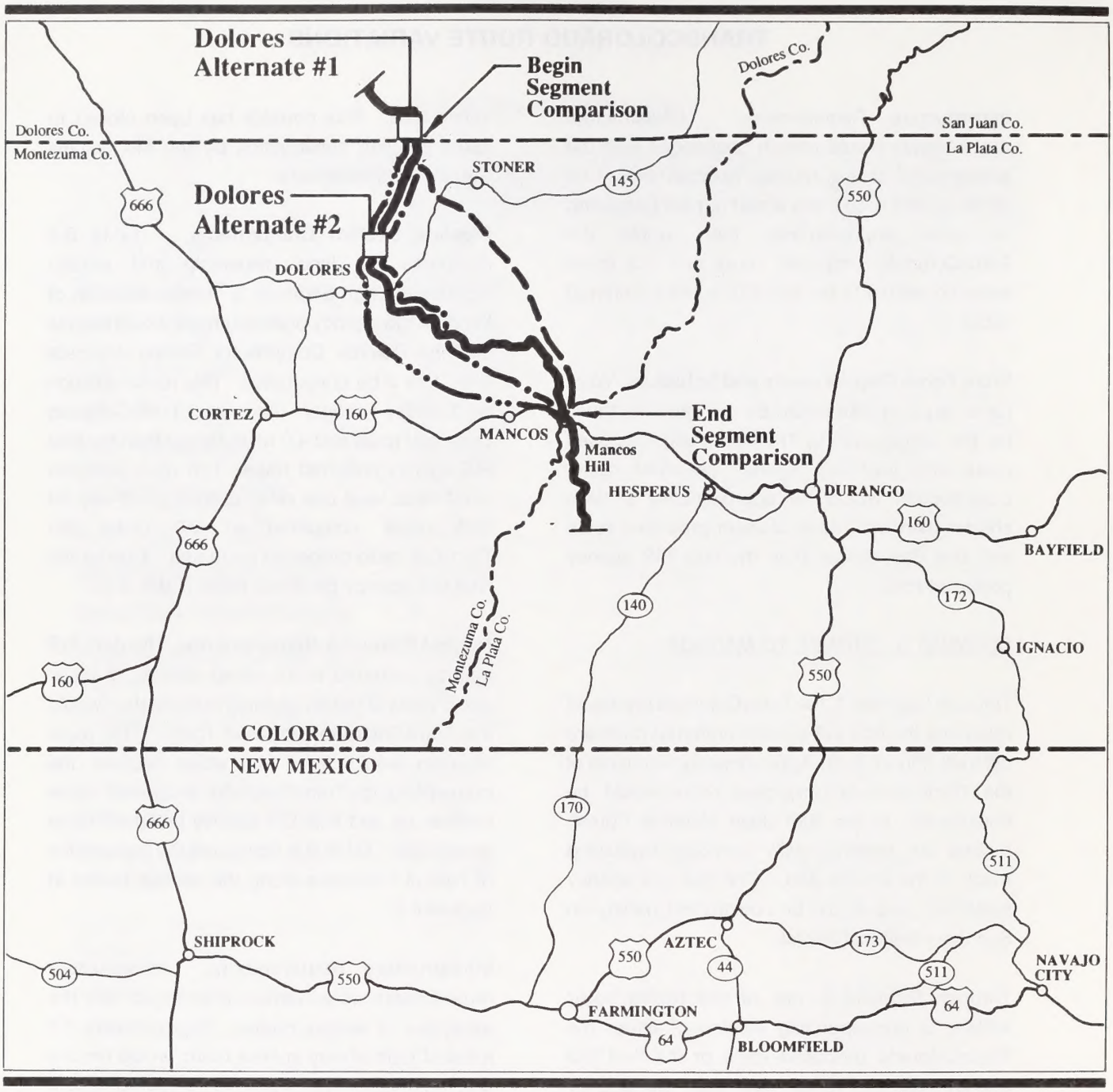
The draft EIS agency preferred route could replace the corresponding section of either the proposed route or the final EIS agency preferred route (Figure B-3). The draft EIS agency preferred route would be constructed mostly on private land in an existing corridor in the Mancos Valley area. This corridor has been closed to future pipeline construction by the Montezuma County Commissioners.

Pipeline System Components. Table B-5 compares the land ownership and parallel facilities through Segment 3. Implementation of the draft EIS agency preferred route would require that the Dolores Compressor Station Alternate Sites 1 or 2 be constructed. This route variation is 3 miles shorter than the TransColorado proposed route and 4.0 miles longer than the final EIS agency preferred route. This route variation parallels at least one other utility right-of-way for 28.5 miles compared to 9.3 under the TransColorado proposed route and 14 under the final EIS agency preferred route (Table B-5).

Natural Resource Requirements. The draft EIS agency preferred route would require 72 fewer cubic yards of trench padding material than would the TransColorado proposed route. This route variation would cross four water courses; the corresponding TransColorado proposed route crosses six and final EIS agency preferred route crosses six. Table B-6 compares the occurrence of natural resources along the various routes in Segment 3.

Infrastructure Requirements. Infrastructure requirements would remain unchanged with the exception of access routes. Approximately 7.7 miles of right-of-way access roads would require grading or other improvements compared to 15.0 miles for the TransColorado proposed route and 24.6 for the final EIS agency preferred route.

Work Force Requirements and Schedule. Work force requirements would be the same as those for the corresponding TransColorado proposed route and final agency preferred route. Construction would be approximately 2 days shorter than the TransColorado proposed route and 3 days longer than the final EIS agency preferred route.



Proposed Pipeline Route

Final EIS Agency Preferred Route

Draft EIS Agency Preferred Route

Mancos Valley Central Variation

Proposed Compressor Station

SEGMENT #3 MANCOS VALLEY VARIATIONS

FIGURE B-3

TRANSCOLORADO GAS TRANSMISSION PROJECT

TABLE B-5

Land Ownership and Parallel Facilities
Segment 3 Routes

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	Mancos Valley Central Variation
Length	34 miles	27 miles	31 miles	30 miles
Ownership-Private	29 percent	7 percent	53 percent	50 percent
Ownership - BLM	1 percent	0	6 percent	2 percent
Ownership - National Forest	59 percent	88 percent	36 percent	43 percent
Ownership - State	11 percent	5 percent	5 percent	5 percent
Total Disturbance	309 acres	245 acres	282 acres	273 acres
Parallel Facilities	9.3 miles	14 miles	28.5 miles	9.3 miles
Road Improvements	15 miles	24.6 miles	7.7 miles	8.5 miles
Existing Compressor Stations	0	0	0	0
Proposed Compressor Stations	1	1	1	1
Proposed Meter Stations	0	0	0	0
Proposed Block Valve	2	2	2	2

TABLE B-6

Occurrence of Natural Resources
Segment 3 Routes

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	Mancos Valley Central Variation
Paleontological Formations	1 mile	1.8 miles	0.5 mile	0.8 miles
Oil and Gas Fields	0	0	0	0
Coalbed Methane	0	0	0	0
Coal Formations	29 miles	16 miles	24 miles	24 miles
Strippable Coal	0	0	3	0
Oil Shale (<25 gallons/ton)	0	0	0	0
Oil Shale (>25 gallons/ton)	0	0	0	0
Major Rivers Crossed	1	1	1	1
Major Streams Crossed	2	2	1	1
Minor Streams Crossed	3	3	2	5
Wet Meadow/Hayland	.3 mile	.01 mile	.05 mile	.3 mile
Forested Wetland	.13 mile	.2 mile	.08 mile	.09 mile
Shrubland Wetland	.07 mile	0	.06 mile	.07 mile
Saline/Alkaline Soils	0	0	0	0
Rocky/Shallow/Wetland Soils	18 miles	6 miles	19 miles	16 miles
Steep Ascent/Descent Slopes >15 percent <40 percent	1.7 miles	0.5 mile	1.7 miles	2 miles
Steep Ascent/Descent Slopes > 40 percent	4 miles	1.7 miles	3.8 miles	3 miles
Steep Side Slopes ≥ 40 percent	0	0	0	0

TABLE B-6 (Continued)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	Mancos Valley Central Variation
Active Landslide Areas	0	0	0	0
Landslide Deposits	1.5 miles	3.2 miles	1.5 miles	1.5 miles
Incised Channels	0	0	9 miles	0
Prime Farmland	.3 mile	0	2.2 mile	1.5 miles
Farmland of Statewide Importance	.3 mile	0	1.0 mile	.4
Agricultural Lands	0.6 mile	0	3.2 miles	2.5 miles
Rangeland	10.4 miles	14.1 miles	9.8 miles	11.5 miles
Timber Lands	23 miles	13.0 miles	9 miles	16 miles
Pinyon Juniper	0	0	12 miles	0
AUMs - Livestock	34 AUMs	26 AUMs	31 AUMs	30 AUMs
Key Deer Range	0	0	1.4 miles	0
Key Elk Range	16.4 miles	4.2 miles	8.5 miles	9.8 miles
Key Grouse Range	0	0	0	0
Key Antelope Range	0	0	0	0
Historical Raptor Nests	0	0	1	0
Bald Eagle Winter Range	2 miles	1 mile	4.7 miles	2.4 miles
Black-Footed Ferret Habitat	3 miles	0	3 miles	3 miles
Potential Mexican Spotted Owl Habitat	3.1 miles	2.1 miles	1.5 miles	3.4 miles
Threatened and Endangered Plant Habitat	0.5 mile	1 mile	0	0
Cultural Resources Projected Sites within 75 foot-ROW	21	17	17	20

TABLE B-6 (Continued)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	Mancos Valley Central Variation
Cultural Resources High Sensitivity Areas	18 miles	4 miles	9 miles	12 miles
Cultural Resources Medium Sensitivity Areas	13 miles	20 miles	21 miles	16 miles
Visual Contrasts (High)	3.1 miles	1.2 miles	6.7 miles	2.1 miles
Visual Contrasts (Moderate)	3.3 miles	2.9 miles	5.5 miles	1 mile
Irrigation Ditches	7	6	2	2
Major Rail Crossings	0	0	0	0
Federal Highway Crossings	0	0	2	0
State Highway Crossings	1	1	3	1
Residences within 500 feet of ROW	0	0	25	14
Solid and Hazardous Waste	480 (cubic yards)	373 (cubic yards)	440 (cubic yards)	420 (cubic yards)

Mancos Valley Central Route Variation

The Mancos Valley Central Route Variation would be the same as the TransColorado proposed route from Milepost 212 to Milepost 232 and then replace the corresponding section of the TransColorado proposed route (Figure B-3). The Mancos Valley Central Route Variation would be constructed on private land and on San Juan National Forest land outside an existing utility corridor.

Pipeline System Components. Table B-4 compares the land ownership and parallel facilities of the various routes. Implementation of the Mancos Valley Central Route Variation would require the construction of the Dolores Compressor Station Alternate Site 1 or the Alternate Site 2. The Mancos Valley Central Route Variation is 4.0 miles shorter than the corresponding TransColorado proposed route and 3.0 miles longer than the final EIS agency preferred route.

Natural Resource Requirements. This route variation would use 96 fewer cubic yards of trench material than the TransColorado proposed route and 72 more cubic yards than the final EIS agency preferred route. Table B-5 compares the occurrence of natural resources crossed by the various routes.

Infrastructure Requirements. Infrastructure requirements would remain unchanged with the exception of access routes. Approximately 8.5 miles of right-of-way access roads would require grading or other improvements as opposed to 15 miles under the TransColorado proposed route and 24.6 under the final EIS agency preferred route.

Work Force Requirements and Schedule. Work force requirements would be the same as those described for the TransColorado proposed route and the final EIS agency preferred route. Construction of this route variation would decrease by approximately 3 days in comparison with the TransColorado proposed route.

SEGMENT 4 - STONER TO BLOOMFIELD

Through Segment 4, the TransColorado proposed route and the draft EIS agency preferred routes are different from Dolores to Mancos Hill (see description for Segment 3) and the same from Mancos Hill to Bloomfield (Figure B-4). The final EIS agency preferred route and TransColorado proposed route from Stoner down to Mancos Hill are the same from Mancos Hill to Bloomfield (Figure B-4).

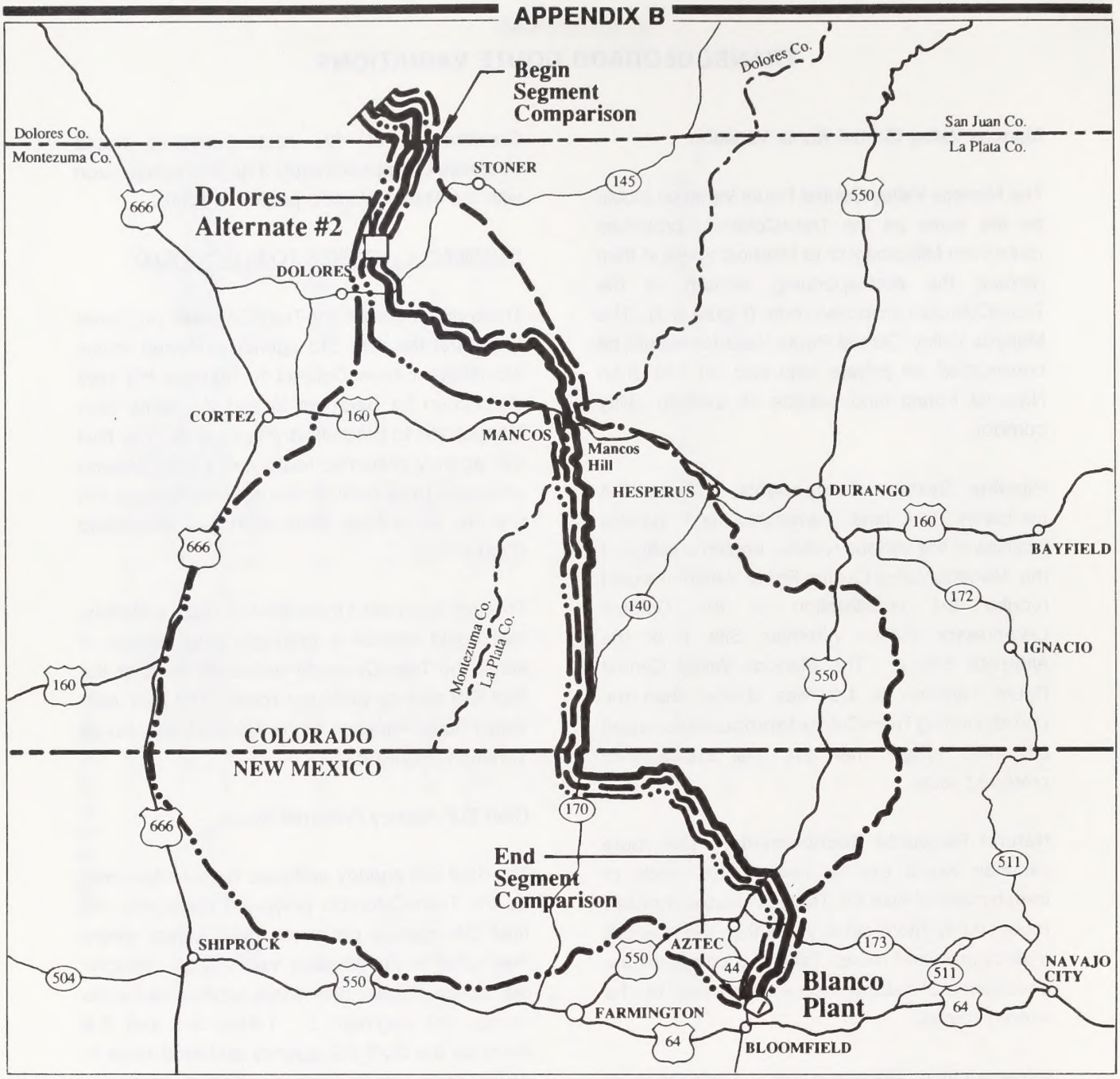
Through Segment 4 there are two route variations that could replace a corresponding section of either the TransColorado proposed route or the final EIS agency preferred route: The San Juan Valley Route Variation or the Animas Valley Route Variation (Figure B-4).

Draft EIS Agency Preferred Route

The draft EIS agency preferred route is the same as the TransColorado proposed route and the final EIS agency preferred route except where they differ in the Mancos Valley area. Specific discussion of those differences is contained in the section for Segment 3. Tables B-7 and B-8 describe the draft EIS agency preferred route in comparison with Segment 4 variations.

Animas Valley Route Variation

The Animas Valley Route Variation begins at Stoner and ends at Bloomfield. This variation is the same as the TransColorado proposed from Stoner to Mancos Hill. At Mancos Hill, this route would replace the TransColorado proposed route/final EIS agency preferred route (both routes are the same from Mancos Hill to Bloomfield). This route variation travels into La Plata County, Colorado, south of the town of



Proposed Pipeline Route

Final EIS Agency Preferred Route

Draft EIS Agency Preferred Route

Animas Valley Variation

San Juan Valley Variation

Proposed Compressor Station

Proposed Meter Station

SEGMENT #4 ANIMAS VALLEY & SAN JUAN VALLEY VARIATIONS

FIGURE B-4

TRANSCOLORADO GAS TRANSMISSION PROJECT

TABLE B-7

Land Ownership and Parallel Facilities
Segment 4 Routes

Length	TransColroado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Length	82 miles	75 miles	79 miles	106 miles	99 miles
Ownership-Private	54 percent	44 percent	64 percent	37 percent	31 percent
Ownership - BLM	24 percent	23 percent	27 percent	17 percent	21 percent
Ownership - National Forest	15 percent	29 percent	4 percent	1 percent	18 percent
Ownership - State	7 percent	4 percent	5 percent	2 percent	8 percent
Ownership - Indian	0 percent	<1 percent	0 percent	33 percent	13 percent
Total Disturbance	745 acres	754 acres	718 acres	963 acres	900 acres
Parallel Facilities	57 miles	71 miles	76 miles	98 miles	61 miles
Road Improvement	28 miles	43 miles	21 miles	51 miles	23 miles
Existing Compressor Station	0	0	0	0	0
Proposed Compressor Stations	1	1	1	1	1
Proposed Meter Stations	1	1	1	1	1
Proposed Block Valve	5	5	5	5	6

TABLE B-8

Occurrence of Natural Resources
Segment 4 Routes

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Paleonotlogical Formations	1 mile	1.8 miles	.5 mile	.5 mile	1 mile
Oil and Gas Fields	24 miles	24 miles	24 miles	30 miles	51 miles
Coalbed Methane	24 miles	24 miles	24 miles	28 miles	52 miles
Coal Formations	24 miles	24 miles	24 miles	63 miles	64 miles
Strippable Coal	6 miles	6 miles	9 miles	3 miles	0
Oil Shale (<25 gallons/ton)	0	0	0	0	0
Oil Shale (>25 gallons/ton)	0	0	0	0	0
Major Rivers Crossed	2	2	2	2	2
Major Streams Crossed	2	2	1	0	2
Minor Streams Crossed	8	9	7	11	7
Wet Meadow/Hayland	.5 mile	.3 mile	.3 mile	.4 mile	.7 mile
Forested Wetlands	.6 mile	.7 mile	.5 mile	1.1 mile	.8 mile
Shrubland Wetland	.1 mile	.03 mile	.09 mile	.1 mile	.07 mile
Saline/Alkaline Soils	0	0	0	61 miles	0
Rocky/Shallow/Wetland Soils	28 miles	30 miles	36 miles	26.9 miles	45.9 miles
Steep Slopes Ascent/Descent >15 percent <40 percent	4.4 miles	3.2 miles0	3.4 miles	4.9 miles	6.4 miles
Steep Ascent/Descent Slopes ≥ 40 percent	3.6 miles	1.9 miles	3.4 miles	2.8 miles	5.3 miles

TABLE B-8 (CONTINUED)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Steep Side Slopes ≥ 40 percent	0	0	0	0	0
Active Landslide Areas	0	0	0	0	0
Landslide Deposits	0	0	0	4.5 miles	12.5 miles
Incised Channels	10 miles	--	19 miles	44 miles	16 miles
Prime Farmlands	5.8 miles	4.8 miles	7 miles	10.8 miles	.7 miles
Farmland of Statewide Importance	.3 miles	0	1.0 miles	3.5 miles	5.5 miles
Agricultural Lands	13 miles	12.9 miles	15.7 miles	14.7 miles	6.6 miles
Rangeland	39.8 miles	31.1 miles	33.0 miles	70.6 miles	45 miles
Timber Lands	14.8 miles	13 miles	.4 mile	7.8 mile	28.1 miles
Pinyon-Juniper	18.4 miles	18 miles	30 miles	13 miles	19.5 miles
AUMS - Livestock	82 AUMs	75 AUMs	79 AUMs	106 AUMs	99 AUMs
Key Deer Range	21.5 miles	21.5 miles	1.4 miles	12.6 miles	10 miles
Key Elk Range	36.7 miles	30.5 miles	28.8 miles	9.9 miles	39.7 miles
Key Grouse Range	0	0	0	0	0
Key Antelope Range	0	0	0	0	0
Historical Raptor Nests	1	2	3	1	1
Bald Eagle Winter Range	12.6 miles	11.7 miles	15.4 miles	4 miles	6.3 miles
Potential Black-Footed Ferret Habitat	0	3	0	31.6 miles	0
Threatened and Endangered Plant Habitat	12.3 miles	11.3 miles	11.3 miles	55 miles	12 miles

TABLE B-8 (CONTINUED)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Cultural Resources Projected Sites within 75-foot ROW	61	57	57	172	44
Cultural Resources High Sensitivity	53 miles	48 miles	53 miles	75 miles	76 miles
Cultural Resources Medium Sensitivity	16 miles	34.8 miles	16 miles	25 miles	13 miles
Visual Contrasts (High)	0.9 miles	1 mile	7.7 miles	7.8 miles	2.5 miles
Visual Contrasts (Moderate)	9 miles	10 miles	12.5 miles	14.9 miles	8.4 miles
Irrigation Ditches	10	9	5	8	10
Major Rail Crossings	0	0	0	0	1
Federal Highway Crossings	2	2	4	2	3
State Highway Crossings	3	3	5	4	2
Residences within 500 feet of ROW	28	17	42	25	27
Solid and Hazardous Waste	1,171 (cubic yards)	1,080 (cubic yards)	1,120 (cubic yards)	1,504 (cubic yards)	1,404 (cubic yards)

Hesperus, southwest of Durango, across the Southern Ute Indian Reservation, and into San Juan county, New Mexico.

Pipeline System Components. Table B-7 compares the land ownership and parallel facilities of the routes in Segment 4. Implementation of the Animas Valley Route Variation would require the construction of the Dolores Compressor Station Alternate 1 site or the Alternate 2 site. This route variation would be 17 miles longer than the corresponding TransColorado proposed route and 24 miles longer than the final EIS agency preferred route. It would parallel at least one linear facility for 61 miles. The corresponding TransColorado proposed route would parallel at least one facility for 57 miles, a difference of 4 miles. The corresponding final EIS agency preferred route would parallel at least one facility for 71 miles, a difference of 10 miles.

Natural Resource Requirements. The Animas Valley Route Variation would require 408 more cubic yards of trench padding material than the corresponding TransColorado proposed route and 576 more cubic yards of trench padding material than the corresponding final EIS agency preferred route. This route variation would cross one potential source of water for testing and dust control in comparison to the two sources crossed by the corresponding proposed route. Table B-8 compares the occurrence of natural resources along the various routes.

Infrastructure Requirements. Infrastructure requirements would remain unchanged with the exception of haul routes. Approximately 23 miles of right-of-way access roads would require grading or other improvements compared to 28 miles of roads on the corresponding TransColorado proposed route, a difference of 5 miles. The corresponding final EIS agency preferred route would require improvements to 43 miles of right-of-way access roads, a difference of 20 miles.

Work Force Requirements and Schedule. Work force requirements would remain the same as those described for the TransColorado proposed route/final EIS agency preferred route. Construction would be increased by 12 days.

San Juan Valley Route Variation

The San Juan Valley Route Variation begins at Stoner and ends at Bloomfield, New Mexico, bypassing the Mancos Valley area (Segment 3). This route variation would cross east of the town of Cortez in Montezuma County, travel south across portions of the Ute Mountain and Navajo Indian Reservations and into San Juan County, New Mexico. This route variation would replace all of the routes through the Mancos Valley, including the Animas Valley Route Variation.

Pipeline System Components. Table B-7 compares the land ownership and parallel facilities through Segment 4. Implementation of the San Juan Valley Route Variation would require the construction of any one of the Dolores compressor stations. This route variation is 24 miles longer than the corresponding TransColorado proposed route from Dolores to Bloomfield and 31 miles longer than the corresponding final EIS agency preferred route from Dolores to Bloomfield. The San Juan Valley Route Variation would parallel at least one utility corridor for 98 miles compared to 57 miles on the corresponding TransColorado proposed route, a difference of 41 miles. The final EIS agency preferred route would parallel at least one utility corridor for 71 miles, a difference of 27 miles.

Natural Resource Requirements. The San Juan Route Variation would require 576 additional cubic yards of trench padding material. The San Juan Valley Route Variation would cross two sources of

hydrostatic test water, the same as the corresponding Transcolorado proposed route. Table B-8 compares the occurrence of natural resources along the various routes.

Infrastructure Requirements. Infrastructure requirements would remain unchanged with the exception of haul routes. Approximately 51 miles of right-of-way access roads would require grading or other improvements compared to approximately 28 miles for the TransColorado proposed route and 43 miles for the final EIS agency preferred route.

Work Force Requirements and Schedule. Work force requirements would be the same as those described for the TransColorado proposed route. Construction would be increased by 17 days.

COMPARISON OF IMPACTS

SEGMENT 1 IMPACTS

Table B-9 compares impacts of the TransColorado proposed route/agency preferred route and the Grand Valley Route Variation.

SEGMENT 2 IMPACTS

Table B-10 compares impacts of the various routes through Segment 2.

SEGMENT 3 IMPACTS

Table B-11 compares impacts of the various routes through Segment 3.

SEGMENT 4 IMPACTS

Table B-12 compares impacts of the various routes through Segment 4.

TABLE B-9

Summary Impact Comparisons for Segment 1 Routes

	TransColorado Proposed/Agency Preferred Route	Grand Valley Variation
Air Quality	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 38 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 51 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.
Topography	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years). Cut-and-fill actions on side slopes greater than 40 percent would be required only where topographic constraints limit other route options.	Cut-and-fill actions to establish a level ROW on steep side slope terrain (40 percent slope or greater) would decrease the amount of natural slope contour on 18 acres for the long term (greater than 50 years). Cut-and-fill actions on side slopes greater than 40 percent would be required only where topographic constraints limit other route options. These slope alterations represent less than 1 percent of the construction ROW area.
Leasable Minerals	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.
Mineral Materials	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.
Water Quality	Trenching, pipe-laying, and backfilling in 1 major river, 2 major streams and 1 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days.	Trenching, pipe-laying, and backfilling in 1 major river and 2 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days.
Municipal Water Supplies	Clearing, grading, trenching, and backfilling 36 acres of ROW within the Palisade municipal watershed and 43 acres in the Grand Junction watershed would slightly increase soil erosion, and slightly decrease the permeability of ROW soils over the short term (1 to 3 years). The pipeline would avoid all spring clusters and intakes in both Palisade and Grand Junction municipal watersheds.	Clearing, grading, trenching, and backfilling would not occur in any municipal watersheds.

TABLE B-9 (Continued)

	TransColorado Proposed/Agency Preferred Route	Grand Valley Variation
Wetlands	Pipeline construction would decrease available wetland areas by disturbing 5.4 acres of wet meadows/haylands, 2 acres of shrub wetlands and 0.2 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction.	Pipeline construction would decrease available wetland areas by disturbing 0 acres of wet meadows/haylands, 1 acre of shrub wetlands, and 2 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction.
Soils	Construction would increase soil erosion for the short term generally stabilized to preconstruction levels within 2 years, some increased erosion would be expected on the entire 481 acres; saline/alkaline soils (168 acres), steep ascent/descent slopes ≥ 15 percent (60 acres), and shallow/rocky soils (209 acres) where revegetation may be more difficult. Over the long term, wind and water erosion losses and vegetation productivity losses from pipeline construction disturbance would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term generally stabilized to preconstruction levels within 2 years, some increased erosion would be expected on the entire 654 acres; saline/alkaline soils (445 acres), steep ascent/descent slopes ≥ 15 percent (33 acres), and shallow/rocky soils (436 acres) where revegetation may be more difficult. Over the long term, wind and water erosion losses and vegetation productivity losses from pipeline construction disturbance would not likely exceed those presently occurring on adjacent, undisturbed soils.
Prime Farmland and Farmland of Statewide Importance	Pipeline construction would decrease farmland areas by disturbing 0 acres of prime farmland, and 71 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 28 acres of prime farmland, and 42 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction. Pipeline construction would decrease orchards by disturbing 6 acres. Impacts to orchards would be long-term impacts of less than 5 percent of total area orchards.
Forestry	Clearing the ROW would decrease forestry resources by approximately 9 acres of timber resources (Douglas fir, ponderosa pine, aspen) and a decrease of 105 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 9 acres of timber resources (Douglas fir, ponderosa pine, aspen) and a loss of 19 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.
Livestock	Clearing the ROW would decrease available grazing land by approximately 53 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 72 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.

TABLE B-9 (Continued)

	TransColorado Proposed/Agency Preferred Route	Grand Valley Variation
Wildlife	ROW clearing would result in decreases in the following types of habitat: 223 acres of key mule deer range, 82 acres of key elk range, and 43 acres of sage grouse breeding nesting habitat. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long-term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 159 acres of key mule deer range, 173 acres of key elk range, 227 acres of key antelope range, and 50 acres of sage grouse breeding nesting habitat. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long-term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.
Fisheries	The pipeline would be constructed across 1 major river, 2 major streams, and 1 minor perennial stream. Of these, 1 is classified as Class 1 coldwater aquatic resources, while the remaining area Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 1 major stream and 2 minor perennial streams. None of these streams are classified as Class 1 coldwater aquatic resources. They are classified as Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.
Cultural Resources	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 12 projected archaeological sites within 75-feet of the ROW. The proposed route would traverse 39 miles of high-sensitivity areas and 10 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 14 projected archaeological sites within 75 feet of the ROW. The route would traverse 21 miles of high-sensitivity areas and 23 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.
Visual Resources	Potentially 1.2 miles of high, short-and long-term visual impacts would occur along the ROW. These impacts would exceed the visual management objectives for these areas.	Approximately 5.8 miles of high, short-and long-term visual impacts would occur along the ROW. These impacts would exceed the visual management objectives for these areas.

TABLE B-9 (Continued)

	TransColorado Proposed/Agency Preferred Route	Grand Valley Variation
Transportation	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 33 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 30 miles of dirt/gravel road.
Solid Hazardous Waste	An estimated 720 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 1,000 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.
Socioeconomic Conditions	The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for one growing season; 71 acres would be affected. Construction and operation of the pipeline would expose 5 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 189 acres would be affected. The pipeline would cross 1 parcel less than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 14 percent of the parcel. First year of operation would yield an estimated $750,600 in property tax revenue.	The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for one growing season; 73 acres would be affected. Construction and operation of the pipeline would expose 49 residences to short term (2 to 3 weeks) increases in construction related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 153 acres would be affected. This variation would cross the rural residential community of Clifton. The pipeline would cross 38 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 20 percent of the area parcels. First year of operation would yield an estimated $980,000 in property tax revenue.

TABLE B-10

Summary Impact Comparisons for Segment 2 Routes

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Air Quality	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 41 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 36 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 35 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.
Topography	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on 11 acres for the long term (greater than 50 years).	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years).	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years).
Leasable Minerals	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.
Mineral Materials	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.
Water Quality	Trenching, pipe-laying, and backfilling in 3 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 5 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 4 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.
Municipal Water Supplies	Construction of the pipeline would not cross a municipal water supply.	Construction of the pipeline would not cross a municipal water supply.	Construction of the pipeline would not cross a municipal water supply.
Bureau of Reclamation Water Projects	No Bureau of Reclamation water projects would be crossed along this segment.	No Bureau of Reclamation water projects would be crossed along this segment.	No Bureau of Reclamation water projects would be crossed along this segment.

TABLE B-10 (Continued)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Wetlands	Pipeline construction would decrease available wetland areas by disturbing 4.5 acres of wet meadows/haylands, 3.8 acre of wet shrublands, and 0.5 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 8.8 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 4.5 acre of wet meadows/haylands, .07 acre of wet shrublands, and 1.0 acre of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 5.57 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 2.7 acre of wet meadows/haylands, 0.1 acres of wet shrublands, and 0.7 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 3.5 acres of wetland soils disturbed by construction.
Soils	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 527 acres. On areas of saline/alkaline soils (145 acres), steep ascent descent slopes $\geq$ 15 percent (56 acres), or rocky shallow soils (104 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 455 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent 35 acres, or rocky shallow soils (171 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 445 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (36 acres), or rocky shallow soils (218 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.
Prime Farmland and Farmland of Statewide Importance	Pipeline construction would decrease farmland areas by disturbing 0 acres of prime farmland, and 0 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 0 acres of prime farmland, and 5.5 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 0 acres of prime farmland, and 21.8 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.

TABLE B-10 (Continued)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Forestry	Clearing the ROW would decrease forestry resources by approximately 9 acres of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of 130 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 55 acres of timber resources (Douglas fir, ponderosa pine, aspen) and a loss of 56 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 38 acres of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of 67 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.
Livestock	Clearing the ROW would decrease available grazing land by approximately 58 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 50 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 49 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.
Wildlife	ROW clearing would result in vegetation decreases in 110 acres of key deer range and 245 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 77 acres of key mule deer range and 45 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 0 acres of key mule deer range and 36 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.

TABLE B-10 (Continued)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Fisheries	The pipeline would be constructed across 3 minor perennial streams. Of these, all are classified as Class 1 coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 5 minor perennial streams. Of these, 3 are classified as Class 1 coldwater aquatic resources, while the remaining is a Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 4 minor perennial streams. Of these, 2 are classified as Class 1 coldwater aquatic resources, while the remaining is a Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.
Cultural Resources	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 8 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 36 miles of high-sensitivity areas and 8 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 116 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 26 miles of high-sensitivity areas and 0 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 56 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 24 miles of high-sensitivity areas and 10 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.
Visual Resources	There would be no high, short-and long-term visual impacts along the ROW.	Approximately 3.2 miles of high, short-and long-term visual impacts along the ROW would exceed the visual management objectives for these areas.	Approximately 11 miles of high, short-and long-term visual impacts along the ROW would exceed the visual management objectives for these areas.
Transportation	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 27.6 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 12.2 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 9 miles of dirt/gravel road.
Solid Hazardous Waste	An estimated 728 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 628 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 700 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.

TABLE B-10 (Continued)

	TransColorado Proposed Route	Final EIS Agency Preferred Route	Draft EIS Agency Preferred Route
Socioeconomic	The proposed route would require 13 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 3.6 acres would be affected. Construction and operation of the pipeline would expose 2 residences to short term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 121 acres would be affected. The pipeline would cross no parcels of fewer than 20 acres. First year of operation would yield an estimated $708,900 in property tax revenue.	The FEIS Agency Preferred would require 7.5 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 10 acres would be affected. Construction and operation of the pipeline would expose 5 residences to short term (2 to 3 weeks) increases in construction related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 209 acres would be affected. The pipeline would cross 0 parcels of fewer than 20 acres. First year of operation would yield an estimated $695,000 in property tax revenue.	The proposed route would require 4.9 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 32.7 acres would be affected. Construction and operation of the pipeline would expose 6 residences to short-term (2 to 3 weeks) increases in construction-related noise. This route would parallel a local roadway through the Avalon Mesa Large Lot subdivision. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 220 acres would be affected. The pipeline would cross 0 parcels of fewer than 20 acres. First year of operation would yield an estimated $681,100 in property tax revenue.

TABLE B-11

Summary Impact Comparisons for Segment 3 Routes

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	Mancos Valley Central Variation
Air Quality	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 24 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 19 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 22 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 21 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.
Topography	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years).	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years).	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years).	Cut-and-fill actions to establish a level ROW on steep side terrain slope (40 percent slope or greater) would decrease the amount of natural slope contour on no acres for the long term (greater than 50 years).
Leasable Minerals	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified. Future conflicts could occur on 27 acres of coal deposits that could be strip mined.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.
Mineral Materials	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.

TABLE B-11 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	Mancos Valley Central Variation
Water Quality	Trenching, pipe-laying, and backfilling in 1 major river, 2 major streams, and 3 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 1 major river, 2 major streams and 3 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 1 major river, 1 major stream and 2 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 1 major river, 1 major stream and 5 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.
Municipal Water Supplies	Construction of the pipeline would trench across one water supply stream (Dolores River).	Construction of the pipeline would trench across one water supply stream (Dolores River).	Construction of the pipeline would trench across one water supply stream (Dolores River) and would cross the Mese Verde National Park underground water pipeline.	Construction of the pipeline would trench across one water supply stream (Dolores River) and would cross the Mesa Verde National Park underground water pipeline.
Bureau of Reclamation Water Projects	No Bureau of Reclamation water projects would be crossed along this segment.	No Bureau of Reclamation water projects would be crossed along this segment.	Based on TransColorado's commitments to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.	No Bureau of Reclamation water projects would be crossed along this segment.
Wetlands	Pipeline construction would decrease available wetland areas by disturbing 2.7 acres of wet meadows/haylands, .6 acre of wet shrublands, and 1.2 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 4.5 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 1 acre of wet meadows/haylands, 0 acre of wet shrublands, and 1.8 acre of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 1.9 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing .5 acre of wet meadows/haylands, .5 acres of wet shrublands, and .7 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 1.7 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 2.7 acres of wet meadows/haylands, .6 acre of wet shrublands, and .8 acre of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 4.1 acres of wetland soils disturbed by construction.

TABLE B-11 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	Mancos Valley Central Variation
Soils	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 309 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (52 acres), or rocky shallow soils (164 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 245 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent 20 acres, or rocky shallow soils (55 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 282 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (50 acres), or rocky shallow soils (173 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 273 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (45 acres), or rocky shallow soils (145 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.
Prime Farmland and Farmland of Statewide Importance	Pipeline construction would decrease farmland areas by disturbing 2.7 acres of prime farmland, and 2.7 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 0 acres of prime farmland, and 0 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 20 acres of prime farmland, and 9 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 13.6 acres of prime farmland, and 3.6 acres of farmlands of statewide importance. Impacts to farmlands would be short term (one growing season). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.
Forestry	Clearing the ROW would decrease forestry resources by approximately 209 acres of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of no acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 118 acres of timber resources (Douglas fir, ponderosa pine, aspen) and a loss of 0 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 82 acres of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of 109 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 145 acres of timber resources (Douglas fir, ponderosa pine, aspen), and a loss of no acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.

TABLE B-11 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	Mancos Valley Central Variation
Livestock	Clearing the ROW would decrease available grazing land by approximately 34 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 27 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 31 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 30 AUMs. This would be a short term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.
Wildlife	ROW clearing would result in vegetation decreases in 149 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in 38 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 13 acres of key mule deer range and 77 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in vegetation decreases in 89 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.

TABLE B-11 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	Mancos Valley Central Variation
Fisheries	The pipeline would be constructed across 1 major river, 2 major streams and 3 minor perennial streams. Of these, 5 are classified as Class 1 coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 1 major river, 2 major streams, and 3 minor perennial streams. Of these, 5 are classified as Class I coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 1 major river, 1 major streams and 2 minor perennial streams. Of these, 3 are classified as Class I coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 1 major river, 1 major stream, and 5 minor perennial streams. Of these, 3 are classified as Class 1 coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.
Cultural Resources	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 21 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 18 miles of high-sensitivity areas and 13 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 17 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 4 miles of high-sensitivity areas and 20 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 17 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 9 miles of high-sensitivity areas and 21 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 20 project archaeological sites within the ROW. The proposed route would traverse 12 miles of high-sensitivity areas and 16 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.

TABLE B-11 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	Mancos Valley Central Variation
Visual Resources	Approximately 3.1 miles of high, short-and long-term visual impacts along the ROW would exceed the visual management objective for these areas.	Approximately 1.2 miles of high, short-and long-term visual impacts along the ROW would exceed the visual management objectives for these areas.	Approximately 6.7 miles of high, short-and long-term visual impacts along the ROW would exceed the visual management objectives for these areas.	Approximately 2.1 miles of high, short-and long-term visual impacts along the ROW would be unavoidable adverse impacts that would exceed the visual management objectives for these areas.
Transportation	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 15 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 24.6 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 7.7 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 8.5 miles of dirt/gravel road.
Solid Hazardous Waste	An estimated 480 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 373 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 440 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 420 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.

TABLE B-11 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	Mancos Valley Central Variation
Socioeconomic	The proposed route would require 20 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 5 acres would be affected. Construction and operation of the pipeline would expose 0 residences to short term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 60 acres would be affected. The pipeline would cross 15 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 12 percent of the area. First year of operation would yield an estimated $472,600 in property tax revenue.	The FEIS preferred route would require 24 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; no acres would be affected. Construction and operation of the pipeline would expose 0 residences to short term (2 to 3 weeks) increases in construction related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 11 acres would be affected. The pipeline would cross 0 parcels of fewer than 20 acres. First year of operation would yield an estimated $430,900 in property tax revenue.	The DEIS preferred route would require 11 miles of National Forest land to be designated as a new multiple utility corridor. The route would not comply with county land use plans in so much as it conflicts with Montezuma County resolution, closing the Mancos Valley to further development of pipeline corridors. Crop production would be suspended within the 75-foot construction ROW for two growing seasons. Approximately 29 acres of cropland would be affected. Construction and operation of the pipeline would expose 25 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 100 acres would be affected. The pipeline would cross 6 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 26 percent of the area. First year of operation would yield an estimated $444,800 in property tax revenue.	The Mancos Valley Central Route would require 13 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 23 acres would be affected. Construction and operation of the pipeline would expose 14 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 91 acres would be affected. The pipeline would cross 3 parcels or fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 7 percent of the area. First year of operation would yield an estimated $430,900 in property tax revenue.

TABLE B-12

Summary Impact Comparisons for Segment 4 Routes

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Air Quality	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 58 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 54 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 56 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 76 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.	Fuel combustion by pipeline construction equipment would increase the concentrations of carbon monoxide, unburned hydrocarbons, particulate matter, and fugitive dust for the short term along 1.4 pipeline miles per day for an estimated 71 construction days; the same pollutants would be emitted for an estimated 90-day construction period at each of the seven compressor sites.
Topography	No cut-and-fill actions on side slopes greater than 40 percent would be required.	No cut-and-fill actions on side slopes greater than 40 percent would be required.	No cut-and-fill actions on side slopes greater than 40 percent would be required.	No cut-and-fill actions on side slopes greater than 40 percent would be required.	No cut-and-fill actions on side slopes greater than 40 percent would be required.
Leasable Minerals	No existing conflicts with oil and gas development, and active coal, oil shale leases were identified. Potential future coal development conflicts could occur on 6 miles underlain by strippable coal.	No existing conflicts with oil and gas development, and active coal, oil shale leases were identified. Potential future coal development conflicts could occur on 6 miles underlain by strippable coal.	No existing conflicts with oil and gas development, and active coal, oil shale leases were identified. Potential future coal development conflicts could occur on 9 miles underlain by strippable coal.	No existing conflicts with oil and gas development were identified. This Variation crosses approximately 4 miles of the active San Juan coal lease west of Farmington. The pipeline would not cross currently active mining areas. Potential future coal development conflicts could occur on 3 miles underlain by strippable coal.	No potential conflicts with oil and gas development, and active coal, oil shale leases were identified.
Mineral Materials	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.	No direct pipeline ROW conflicts with active mineral materials operations were identified. There is some likelihood of future access preclusion to unleased mineral materials, but economic importance of these preclusions are expected to be small.
Water Quality	Trenching, pipe-laying, and backfilling in 2 major rivers, 2 major streams, and 8 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 2 major rivers, 2 major stream, and 9 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 2 major rivers, 1 major stream, and 7 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing.	Trenching, pipe-laying, and backfilling in 2 major rivers and 11 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing. The Dolores River water development project would be crossed. This would result in disturbance resulting from the construction of the bored crossing.	Trenching, pipe-laying, and backfilling in 2 major rivers, 2 major streams and 7 minor perennial streams would result in short-term increases in suspended sediment during the pipeline installation period that would range from 1 to 5 days per crossing. The Florida water project would be crossed. Disturbance would occur related to crossing of irrigation facilities.

TABLE B-12 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Municipal Water Supplies	Trenching of the pipeline would cross one water supply stream (Dolores River).	Trenching of the pipeline would cross one water supply stream (Dolores River).	Trenching of the pipeline would cross one water supply stream (Dolores River) and would cross the Mesa Verde National Park underground water pipeline.	Trenching of the pipeline would cross one water supply stream (Dolores River).	Trenching of the pipeline would cross one water supply stream (Dolores River).
Bureau of Reclamation Water Projects	No Bureau of Reclamation water projects would be crossed along this segment.	No Bureau of Reclamation water projects would be crossed along this segment.	Based on TransColorado's commitments to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.	Based on TransColorado's commitments to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.	Based on TransColorado's commitments to bore under lined canals, trench through unlined canals when they are not in use, restore the canals to their original condition, and to monitor for canal integrity for 2 years, the pipeline would not affect irrigation water deliveries or canal integrity.
Wetlands	Pipeline construction would decrease available wetland areas by disturbing 4.5 acres of wet meadows/haylands, 1 acre of wet shrublands, and 5.4 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 11 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 2.7 acres of wet meadows/haylands, 0.3 acre of wet shrublands, and 6.4 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 9 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 2.7 acres of wet meadows/haylands, .8 acre of wet shrublands, and 4.5 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 8 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 3.6 acre of wet meadows/haylands, 0.9 acre of wet shrublands, and 9.9 acres of forested wetlands. The disturbance of wet meadows/ haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 14.4 acres of wetland soils disturbed by construction.	Pipeline construction would decrease available wetland areas by disturbing 6.4 acres of wet meadows/haylands, .6 acre of wet shrublands, and 7.3 acres of forested wetlands. The disturbance of wet meadows/haylands would be short term, and the disturbance of shrublands and forested wetlands would be long term. Much less than 1 percent of the wetlands in any watershed would be impacted by pipeline construction. Short-term increases in soil erosion would also occur on 14.3 acres of wetland soils disturbed by construction.
Soils	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 745 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (73 acres), or rocky shallow soils (254 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 682 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (46 acres), or rocky shallow soils (273 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 718 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (62 acres), or rocky shallow soils (327 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 963 acres. On areas of saline/alkaline soils (554 acres), steep ascent descent slopes $\geq$ 15 percent (70 acres), or rocky shallow soils (245 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.	Construction would increase soil erosion for the short term, generally stabilizing to pre-construction levels within 2 years. Some increased erosion would be expected on the entire 900 acres. On areas of saline/alkaline soils (0 acres), steep ascent descent slopes $\geq$ 15 percent (106 acres), or rocky shallow soils (417 acres) revegetation may be more difficult. Over the long term wind and water erosion losses and vegetation productivity losses from pipeline construction disturbances would not likely exceed those presently occurring on adjacent, undisturbed soils.

TABLE B-12 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Prime Farmland and Farmland of Statewide Importance	Pipeline construction would decrease farmland areas by disturbing 53 acres of prime farmland, and 2.7 acres of farmlands of statewide importance. Impacts to farmlands would be short term (two growing seasons). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 44 acres of prime farmland. Impacts to farmlands would be short term (two growing seasons). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 64 acres of prime farmland, and 9 acres of farmlands of statewide importance. Impacts to farmlands would be short term (two growing seasons). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 98 acres of prime farmland, and 32 acres of farmlands of statewide importance. Impacts to farmlands would be short term (two growing seasons). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.	Pipeline construction would decrease farmland areas by disturbing 6 acres of prime farmland, and 50 acres of farmlands of statewide importance. Impacts to farmlands would be short term (two growing seasons). A fraction of one percent of farmlands in any county crossed by the pipeline would be taken out of production as a result of pipeline construction.
Forestry	Clearing the ROW would decrease forestry resources by approximately 135 acres of timber resources (Douglas fir, ponderosa pine, aspen) and 167 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 118 acres of timber resources (Douglas fir, ponderosa pine, aspen) and 164 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 3.6 acres of timber resources (Douglas fir, ponderosa pine, aspen) and 273 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 71 acres of timber resources (Douglas fir, ponderosa pine, aspen) and 118 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.	Clearing the ROW would decrease forestry resources by approximately 255 acres of timber resources (Douglas fir, ponderosa pine, aspen) and 177 acres of pinyon-juniper woodlands. These would be long-term impacts of less than 1 percent of the adjacent forested lands.
Livestock	Clearing the ROW would decrease available grazing land by approximately 82 AUMs. This would be a short-term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 75 AUMs. This would be a short-term impact of less than 1 percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 79 AUMs. This would be a short-term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 106 AUMs. This would be a short-term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.	Clearing the ROW would decrease available grazing land by approximately 99 AUMs. This would be a short-term impact of less than one percent of the AUMs available in grazing allotments crossed by the pipeline. No reductions in stocking rates would occur in any allotments as a result of pipeline construction.
Wildlife	ROW clearing would result in decreases in the following types of habitat: 195 acres of key mule deer range and 334 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long-term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 195 acres of key mule deer range and 277 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 13 acres of key mule deer range and 262 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long-term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 114 acres of key mule deer range and 90 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long-term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.	ROW clearing would result in decreases in the following types of habitat: 91 acres of key mule deer range and 361 acres of key elk range. Short-term impacts would include displacement of animals away from construction, and limited mortality of small, less mobile animals. These short-term impacts are unquantifiable. No population declines would result from pipeline construction for any species. Long-term impacts would include disturbances of key game ranges and structural vegetation changes. These impacts would include less than 1 percent of the surrounding key game ranges, and vegetation types.

TABLE B-12 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Fisheries	The pipeline would be constructed across 2 major rivers crossed, 2 major streams and 8 minor perennial streams. Of these, 6 are classified as Class 1 coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 2 major rivers, 2 major streams, and 9 minor perennial streams. Of these, 6 are classified as Class 1 coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 2 major rivers, 1 major stream, and 7 minor perennial streams. Of these, 4 are classified as Class 1 coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 2 major rivers and 11 minor perennial streams. Of these, 1 is classified as Class 1 coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.	The pipeline would be constructed across 2 major rivers, 2 major streams, and 7 minor perennial streams. Of these, 8 are classified as Class 1 coldwater aquatic resources, while the remaining are Class II, warmwater or coldwater aquatic resources. Pipeline construction would result in short-term increases in sedimentation and short-term disturbances of stream bed substrate and biota. The streambed disturbance would result in very limited fish mortality. No loss of fishery quality or recreational opportunities would occur as a result of pipeline construction.
Cultural Resources	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 61 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 53 miles of high-sensitivity areas and 16 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 57 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 48 miles of high-sensitivity areas and 35 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 57 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 53 miles of high-sensitivity areas and 16 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 172 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 75 miles of high-sensitivity areas and 25 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.	Based on Class I inventory data, construction would result in the direct disturbance and data recovery of 44 projected archaeological sites within the 75-foot ROW. The proposed route would traverse 76 miles of high-sensitivity areas and 13 miles of medium-sensitivity areas. The required Class III surveys and TransColorado's Programmatic Agreement would protect cultural resources and provide for data recovery where cultural resource sites must be disturbed. Disturbance to traditional cultural properties of Native Americans and indirect impacts due to unauthorized collection of surface artifacts may occur.
Visual Resources	Approximately 0.9 mile of high, short- and long-term visual impacts would occur along the ROW and at four above-ground facility sites. These would be unavoidable adverse impacts that would exceed the visual management objectives for these areas.	Approximately 1 mile of high, short-and long-term visual impacts would occur along the ROW and at four above-ground facility sites. These would be unavoidable adverse impacts that would exceed the visual management objectives for these areas.	Approximately 7.7 miles of high, short-and long-term visual impacts would occur along the ROW and at four above-ground facility sites. These would be unavoidable adverse impacts that would exceed the visual management objectives for these areas.	Approximately 7.8 miles of high, short-and long-term visual impacts would occur along the ROW and at four above-ground facility sites. These would be unavoidable adverse impacts that would exceed the visual management objectives for these areas.	Approximately 2.5 miles of high, short- and long-term visual impacts would occur along the ROW and at four above-ground facility sites. These would be unavoidable adverse impacts that would exceed the visual management objectives for these areas.
Transportation	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 28 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 43 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 21 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 51 miles of dirt/gravel road.	Construction would result in possible traffic delays during road crossings and would necessitate the improvement or grading of 23 miles of dirt/gravel road.

TABLE B-12 (Continued)

	TransColorado Proposed Route	FEIS Agency Preferred Route	DEIS Agency Preferred Route	San Juan Valley Variation	Animas Valley Variation
Solid Hazardous Waste	An estimated 1,171 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 1,080 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 1,120 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 1,504 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.	An estimated 1,404 cubic yards of construction related solid waste would be generated and disposed of in currently operating landfills along the pipeline route.
Socioeconomic	The proposed route would require 12 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 118 acres would be affected; 362 acres of rangeland would be removed from grazing for 1 year. Construction and operation of the pipeline would expose 28 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 267 acres would be affected. The pipeline would cross 13 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 13 percent of the area. First year of operation would yield an estimated $1,139,800 in property tax revenue.	The proposed route would require 22 miles of National Forest land to be designated as a new multiple utility corridor. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 117 acres would be affected; 283 acres of rangeland would be removed from grazing for one year. Construction and operation of the pipeline would expose 17 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 5-foot permanent ROW; 200 acres would be affected. The pipeline would cross 13 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 13 percent of the area. First year of operation would yield an estimated $1,153,700 in property tax revenue.	The proposed route would require 3 miles of National Forest land to be designated as a new multiple utility corridor. The route would conflict with Montezuma County resolution to close Mancos Valley pipeline corridor. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 143 acres would be affected; 300 acres of rangeland would be removed from grazing for one year. Construction and operation of the pipeline would expose 42 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 306 acres would be affected. The pipeline would cross 19 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 17 percent of the area. First year of operation would yield an estimated $1,098,100 property tax revenue.	The proposed route would require 1 mile of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. This variation crosses the Hogback ACEC. The variation is not in compliance with the Farmington RMP management practice to avoid construction in this ACEC. The Glade Run Trail system is also crossed. Both areas would experience short-term disturbances from pipeline construction. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 134 acres would be affected; 642 acres of rangeland would be removed from grazing for 1 year. Construction and operation of the pipeline would expose 25 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 238 acres would be affected. The pipeline would cross 50 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 20 percent of the area. First year of operation would yield an estimated $1,473,400 in property tax revenue.	The proposed route would require 18 miles of National Forest land to be designated as a new multiple utility corridor. The route would comply with county land use plans. Crop production would be suspended within the 75-foot construction ROW for two growing seasons; 60 acres would be affected; 409 acres of rangeland would be removed from grazing for one year. Construction and operation of the pipeline would expose 27 residences to short-term (2 to 3 weeks) increases in construction-related noise. Structural improvements on private land would be prohibited within the 50-foot permanent ROW; 186 acres would be affected. The pipeline would cross 10 parcels of fewer than 20 acres. Combination of this pipeline ROW with existing parallel ROW would preclude the placement of buildings on 25 percent of the area. First year of operation would yield an estimated $1,376,100 in property tax revenue.

APPENDIX C

WETLANDS AND STREAM CROSSINGS

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
P.O.BOX 1580
ALBUQUERQUE, NEW MEXICO 87103-1580
FAX (505) 766-2770

REPLY TO ATTENTION OF:

April 7, 1992

92 APR 8 PM 1:03

Construction-Operations Division
Regulatory Branch

Ms. Joann Graham
Bureau of Land Management
764 Horizon Drive
Grand Junction, Colorado 81506

Dear Ms. Graham:

This in response to your Preliminary Final Environmental Impact Statement (PFEIS) for the TransColorado Gas Pipeline Project. This project will involve crossings within the Albuquerque District of the La Plata and Animas Rivers and several smaller waterways near Aztec, San Juan County, New Mexico (Action No. 1991 50096). We have reviewed the PFEIS and it's discussion of the Corps of Engineers' regulatory responsibilities with regard to river and wetland crossings in the Albuquerque District. The following comments are made with regard to a regional permit we are proposing for pipeline crossings in the San Juan Basin of New Mexico; and recent changes in the nationwide permit program (33 CFR 330, published in the Federal Register on November 22, 1991) that will affect the crossings in New Mexico.

Water quality in the San Juan Basin of New Mexico has been impaired by salinity, siltation, reduction of riparian vegetation, streambank destabilization, pesticides, and metals. There is also concern regarding bioaccumulation of trace metals and polyaromatic hydrocarbons (PAHs) in biota of the San Juan and Animas Rivers. The sources of this water quality impairment include both agriculture and resource extraction. Other unknown sources are also suspected. Due to these concerns, requests have been made to the Albuquerque District Engineer from Federal and state resource agencies to revoke nationwide permits for pipeline crossings in the San Juan, Animas, and La Plata Rivers within the Albuquerque District. Such a revocation would require each pipeline crossing of the La Plata, Animas, and San Juan Rivers to obtain an individual Section 404 permit.

Numerous pipelines have crossed the San Juan, Animas, and La Plata Rivers in recent years and additional crossings will occur as a result of the current demand for gas and oil development in the San Juan Basin. We recognize that it is important for companies planning these crossings to be informed of environmental issues, and to know in advance what requirements exist under Section 404 of the Clean Water Act for authorization of their activities. We have proposed Regional Permit No. NM-92-00045 to address these issues and to eliminate the potential for negative cumulative impacts to the water resources of the San

Juan Basin. A copy of the Regional Permit Public Notice is enclosed for your review and information. The regional permit should streamline the permitting process, provide potential applicants with guidelines for obtaining Section 404 authorization from the Corps of Engineers, and reduce the burden on the regulated public.

The suspense date for comments on proposed Regional Permit No. NM-91-00045 is April 23, 1992. If the regional permit is in effect prior to the proposed start date of the pipeline project, the crossings of the La Plata and Animas Rivers in New Mexico may be authorized by the regional permit, provided all the necessary conditions are satisfied. If the proposed work will not comply with the regional permit or the regional permit is not subsequently approved, the crossings of the La Plata and the Animas Rivers will require an individual Section 404 permit.

The crossings of the smaller waterways which are located above the headwater point can be authorized under Nationwide Permit No. 26 (Appendix A to 33 CFR 330) for discharges of dredged or fill material into headwaters and isolated waters of the United States, including wetlands, provided the crossings do not result in the loss of more than one acre of waters of the United States. Notification is required in accordance with General Condition No. 13 of the nationwide permit if the discharge will result in the loss of one to ten acres of waters of such waters. Discharges resulting in the loss or more than ten acres will require an individual permit. A summary of this nationwide permit (containing the recent changes) is enclosed for your information.

No work can be performed in any wetland (over 1/2 acre in size) or perennial surface water of New Mexico under this nationwide permit until the permittee has notified the Surface Water Quality Bureau of the New Mexico Environment Department (NMED), and has received Environment Department approval of plans and specifications detailing how water quality standards will be attained. The NMED may be contacted at the following address:

New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
Attn: Mr. David Coss ph. (505) 827-2793

The opportunity to review your PFEIS is appreciated. Should you have any questions concerning these comments, please feel free to write or call Mr. James Wood at (505) 766-2776.

Sincerely,

Andrew J. Rosenau
Chief, Regulatory Branch

2 Enclosures
1. Draft Public Notice/Regional Permit
2. Nationwide Permit Summary

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

April 16, 1992

Regulatory Section

Ms. Joanne Graham
Bureau of Land Management
764 Horizon Drive
Grand Junction, Colorado 81506

Dear Ms. Graham:

I am writing to you in regard to the Preliminary Final Environmental Impact Statement (PFEIS) for the TransColorado Gas Transmission Project. We have reviewed the document and offer the following comments.

We support the BLM's position of not issuing the ROD or the ROW permit until the wetlands are delineated and the Section 404 permits are secured by TransColorado. This position should provide for a better NEPA document by allowing this agency to review plans and pursue the least damaging alternatives to the aquatic environment through our permit process. We also believe that this portion will enhance your agency's compliance with the Executive Order for protection of wetlands. We still believe that most of the crossings of waters of the Untied States can be authorized by nationwide general permit number 12 in Colorado: and, TransColorado appears to be committed to minimizing impacts by avoiding wetlands. We have not yet seen any design plans for river or wetland crossings. We are aware that TransColorado is working on the wetland delineation for the entire route.

On page 59 of the PFEIS, you state that TransColorado has worked with the Cities of Palisade and Grand Junction on their concerns about the projects impacts to the cities' water supplies.
We will require that TransColorado submit a letter from each city approving the plans for the crossings in the vicinity of these cities' water supply intakes. On page 50, the document refers again to rock waterways. Although we are not sure what is meant by this term, we do not believe that they are covered by nationwide general permit number 12. A statement should be added that staging areas would not be located in wetlands.

Thank you for this opportunity to comment on this document. If you have additional questions, contact Mr. Michael Claffey of this office at (303) 243-1199.

Sincerely,

Grady L. McNure
Chief, Western Colorado Regulatory Office
402 Rood Avenue, Room 142
Grand Junction, Colorado 81501-2563

C-3

WETLANDS AND STREAM CROSSINGS

APPENDIX C

TABLE C-1

Stream Crossings and Wetlands Traversed by the TransColorado Pipeline TransColorado Proposed Route

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
2.3	Piceance Creek[5]		X		25	R3SBC
2.2	Piceance Creek Hay Meadows			X	1,125	PEM2K
5.0	Hunter Creek	X			5	PEMA
8.5	Willow Creek[5]		X		5	PEM1C
8.7	Willow Creek Hay Meadows			X	80	PEM2K
15.5	Scandard Gulch			X	180	PFO1A
19.7	West Fork Parachute Creek	X			15	PEMA
23.9	Doe Creek	X		X	25	PFO1A
25.1	Crystal Creek		X		5	PEM1C
25.1	Crystal Creek Riparian Zone			X	135	PFO1A
36.3	Conn Creek		X		30	R4SBC
	Conn Creek Riparian Zone			X	100	PSS1A
44.1	Roan Creek Riparian		X	X	50	PFO1Ab
44.2	Roan Creek Hay Meadows			X	180	PEM2K
46.7	Unnamed tributary of Colorado River	X			25	R4SBC
47.0	Colorado River		X		375	R3UBH
	Colorado River Riparian Zone			X	500	PFO1A
47.2	Colorado River Hay Meadows			X	3,000	PEM2K
50.3	Sand Wash	X			15	R4SBC
59.0	Plateau Creek[5]		X		70	R2US1F
65.6	Tate Creek	X		X	120	PFO1A

TABLE C-1 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
70.0	Rapid Creek	X			20	PFO1A
71.9	Cottonwood Creek	X			20	PFO1A
75.3	Sink Creek	X			15	R4SBC
82.5	Whitewater Creek	X			15	R4SBC
82.5	Whitewater Creek Floodplain			X	30	PSS1A
83.3	Unnamed Creek	X			20	R4SBA
88.5	Kannah Creek	X			20	R4SBA
	Kannah Creek Floodplain			X	50	PSS1C
90.9	Unnamed Creek	X			20	R4SBA
91.3	Indian Creek	X			20	R4SBA
94.2	King Creek	X			20	R4SBA
95.0	Deer Creek	X			20	R4SBA
96.4	Windy Creek	X			20	R4SBA
99.8	Wells Gulch	X			20	R4SBA
106.6	Alkali Creek	X			20	PSS1A
108.0	Gunnison River Riparian Zone			X	2,000	PFO1A
108.5	Gunnison River[5]		X		250	R2UBH
108.7	Roubideau Creek		X		25	R3SBC
	Roubideau Creek Riparian Zone			X	140	PFO1A
111.0	Cottonwood Creek	X			20	R4SBC
	Cottonwood Creek Riparian Zone			X	50	PFO1A
113.4	Roubideau Creek		X		25	R3SBC
	Roubideau Creek Riparian Zone				50	PFO1A
120.6	Roatcap Gulch	X			15	R4SBA
122.2	Big Sandy Wash	X			15	PEM2K

TABLE C-1 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
140.6	Grays Creek	X			15	PFO1A
143.5	Kelly Creek	X			20	PFO1A
146.4	Sheep Creek[5]		X		15	R3SBC
148.4	Unnamed drainage of Cottonwood Creek	X			15	R4SBA
153.6	San Miguel River Hay Meadows			X	150	PEM2K
153.7	San Miguel River[5]		X		80	R2UB1F
	San Miguel River Riparian Zone			X	70	PFO1A
158.3	Maverick Draw[5]		X		20	R3SBC
158.6	Maverick Draw Hay Meadows			X	150	PEM2K
160.0	Naturita Creek[5]		X		40	R2UBF
	Naturita Creek Riparian Zone			X	160	PSS1A
161.9	Hamilton Creek	X		X	15	R4SBA/PSS1A
162.1	Grassy Draw	X		X	15	R4SBA/PSS1A
165.0	Broad Canyon	X			15	R4SBA/PEM2A
170.9	Nelson Creek	X			20	R4SBC
170.3	Dry Creek	X			20	R4SBC
172.0	Dead Horse Creek	X			20	R4SBC
176.7	Big Gypsum Creek	X			15	R4SBA
181.5	Spring Creek	X			15	R4SBA
189.0	Disappointment Creek	X			30	R4SBA
203.7	Summer Camp Creek	X			20	R4SBA
204.3	Summer Camp Creek	X			20	R4SBA
205.0	Summer Camp Creek	X			20	R4SBA
205.2	Plateau Creek[5]		X		20	R2UBF
210.2	Beaver Creek	X			15	R4SBA

TABLE C-1 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
214.7	Turkey Creek	X			15	R4SBC/PFO1A
216.4	Boggy Draw	X			15	R4SBC/PFO1A
217.6	House Creek	X			15	R4SBC/PFO1A
218.3	House Creek Tributary	X			15	R4SBC/PFO1A
218.8	House Creek Tributary	X			15	R4SBC/PFO1A
225.8	Dolores River Hay Meadow			X	1,400	PEM2K
225.9	Dolores River[5,7]		X		100	R3UBH
230.2	Lost Canyon Creek		X		30	R2UB1F
230.2	Lost Canyon Creek Riparian Zone			X	400	PSS1A
238.1	Chicken Creek[5,7]		X		30	R2UB1F
	Chicken Creek Riparian Zone			X	50	PFO1A
240.7	West Mancos River[5,7]		X		50	R2UB1F
240.7	West Mancos River Riparian Zone			X	200	PFO1A
244.9	Middle Mancos River[5,7]		X		30	R2UB1F
	Middle Mancos River Riparian Zone			X	50	PFO1A
246.4	East Mancos River[5,7]		X	X	50	R2UB1F/ PFO1A
251.6	Cherry Creek	X			20	R4SBC
252.6	Devils Canyon	X			15	R4SBA
259.0	Alkali Gulch	X			15	R4SBA
	Alkali Gulch Riparian Zone			X	50	PSS1A
259.8	Alkali Gulch	X			15	R4SBA

TABLE C-1 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
	Alkali Gulch Riparian Zone			X	100	PSS1A
265.4	La Plata River		X		30	R2UB1H
270.0	La Plata River		X		30	R2UB1H
	La Plata River Hay Meadow			X	700	PEM2K
270.9	La Plata River		X		30	R2UB1H
272.4	La Plata River		X		30	R2UB1H
272.4	La Plata River Riparian Zone			X	1,200	PFO1A
273.4	Morgan Canyon	X			20	PFO1A
272.5	La Plata River Hay Meadow			X	800	PEM2K
275.0	La Plata River		X		30	R2UB1H
	La Plata River Riparian Zone				100	PFO1A
275.7	La Plata River		X		30	R2UB1H
276.0	La Plata River		X		30	R2UB1H
279.8	McDermott Arroyo	X			30	R4SBA
281.1	Jaquez Arroyo	X			20	R4SBA
286.0	Farmington Glade	X			50	R4SBA
293.7	Animas River[6]		X		150	R2UB1H
	Animas River Riparian Zone			X	300	PFO1A
294.6	Hart Canyon	X			100	R4SBA
296.8	North Knowlton Canyon	X			100	R4SBA

TABLE C-1 (Continued)

Footnotes:

[1]I = intermittent

[2]P = perennial

[3]WL/R = wetland/riparian

[4]NWI Classification

PEMA	- palustrine, emergent, temporarily flooded
PEM2A	- palustrine, emergent, nonpersistent, temporarily flooded
PEM1C	- palustrine, emergent, persistent, seasonally flooded
PEMZC	- palustrine, emergent, nonpersistent, seasonally flooded
PEMZK	- palustrine, emergent, nonpersistent, artificially flooded
PFOK	- palustrine, forested, artificially flooded
PFO1A	- palustrine, forested, broad leaved deciduous, temporarily flooded
PFO1Ab	- palustrine, forested, broad leaved deciduous, temporarily flooded, beaver
PFO1C	- palustrine, forested, broad leaved deciduous, seasonally flooded
PFO4C	- palustrine, forested, needle leaved evergreen, seasonally flooded
PSS1A	- palustrine, scrub shrub, broad leaved deciduous, temporarily flooded
PSS1C	- palustrine, scrub shrub, broad leaved deciduous, seasonally flooded
PUBHh	- palustrine, unconsolidated bottom, permanently flooded, diked impounded
R2UBF	- riverine, lower perennial, unconsolidated bottom, semi-permanently flooded
R2UBH	- riverine, lower perennial, unconsolidated bottom, permanently flooded
R2UC1F	- riverine, lower perennial, unconsolidated bottom, cobble gravel, semi-permanently flooded
R2UB1H	- riverine, lower perennial, unconsolidated bottom, cobble gravel, permanently flooded
R2US1F	- riverine, lower perennial, unconsolidated shore, cobble gravel, semi-permanently flooded
R3UBH	- riverine, upper perennial, unconsolidated bottom, permanently flooded
R3SBC	- riverine, upper perennial, stream bed, seasonally, flooded
R4SBA	- riverine, intermittent, streambed, temporarily flooded
R4SBC	- riverine, intermittent, streambed, seasonally flooded

[5]Aquatic Life, Class 1, Cold; Colorado - waters that are 1) capable of sustaining a wide variety of coldwater biota, including sensitive species, or 2) could sustain such biota for correctable water quality.

[6]Cold Water Fishery; New Mexico

[7]High Quality, Class 2 - high quality waters which are not designated as outstanding state or national resources. These waters should be maintained and protected at their existing quality.

APPENDIX C

TABLE C-2

Stream Crossings and Wetlands Traversed by the TransColorado Pipeline Agency Preferred Route

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
2.3	Piceance Creek[5]		X		25	R3SBC
2.2	Piceance Creek Hay Meadows			X	1,125	PEM2K
5.0	Hunter Creek	X			5	PEMA
8.5	Willow Creek[5]		X		5	PEM1C
8.7	Willow Creek Hay Meadows			X	80	PEM2K
15.5	Scandard Gulch			X	180	PFO1A
19.7	West Fork Parachute Creek	X			15	PEMA
23.9	Doe Creek	X		X	25	PFO1A
25.1	Crystal Creek		X		5	PEM1C
25.1	Crystal Creek Riparian Zone			X	135	PFO1A
36.3	Conn Creek		X		30	R3SBC
	Conn Creek Riparian Zone			X	100	PSS1A
44.1	Roan Creek Riparian		X	X	50	PFO1Ab
44.2	Roan Creek Hay Meadows			X	180	PEM2K
46.7	Unnamed tributary of Colorado River	X			25	R4SBC
47.0	Colorado River		X		375	R3UBH
	Colorado River Riparian Zone			X	500	PFO1A
47.2	Colorado River Hay Meadows			X	3,000	PEM2K
50.3	Sand Wash	X			15	R4SBC
59.0	Plateau Creek[5]		X		70	R2US1F
65.6	Tate Creek	X		X	120	PFO1A
70.0	Rapid Creek	X			20	PFO1A
71.9	Cottonwood Creek	X			20	PFO1A
75.3	Sink Creek	X			15	R4SBC

TABLE C-2 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
82.5	Whitewater Creek	X			15	R4SBC
82.5	Whitewater Creek Floodplain			X	30	PSS1A
83.3	Unnamed Creek	X			20	R4SBA
88.5	Kannah Creek	X			20	R4SBA
	Kannah Creek Floodplain			X	50	PSS1C
90.0	Unnamed Creek	X			20	R4SBA
91.3	Indian Creek	X			20	R4SBA
94.2	King Creek	X			20	R4SBA
95.0	Deer Creek	X			20	R4SBA
96.4	Windy Creek	X			20	R4SBA
99.8	Wells Gulch	X			20	R4SBA
106.6	Alkali Creek	X			20	PSS1A
108.5	Gunnison River[5]		X		250	R2UBH
108.0	Gunnison River Riparian Zone			X	2,000	PFO1A
108.7	Roubideau Creek		X		25	R4SBC
	Roubideau Creek Riparian Zone			X	140	PFO1A
111.0	Cottonwood Creek	X			20	R4SBC
	Cottonwood Creek Riparian Zone			X	50	PFO1A
113.4	Roubideau Creek		X		25	R3SBC
	Roubideau Creek Riparian Zone				50	PFO1A
120.6	Roatcap Gulch	X			15	R4SBA
122.2	Big Sandy Wash	X			15	PEM2K
140.6	Grays Creek	X			15	PFO1A
143.5	Kelly Creek	X			20	PFO1A
146.4	Sheep Creek[5]		X		15	R3SBC
148.4	Unnamed drainage of Cottonwood Creek	X			15	R4SBA

APPENDIX C

TABLE C-2 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
153.6	San Miguel River Hay Meadows			X	150	PEM2K
153.7	San Miguel River[5]		X		80	R2UB1F
	San Miguel River Riparian Zone			X	70	PFO1A
158.3	Maverick Draw[5]		X		20	R4SBA
158.6	Maverick Draw Hay Meadows			X	150	PEM2K
160.0	Naturita Creek[5]		X		40	R2UBF
	Naturita Creek Riparian Zone			X	160	PSS1A
166.7	Mud Springs Draw tributary	X			15	R4SBA
167.5	Mud Springs Draw tributary	X			15	R4SBA
167.9	Mud Springs Draw	X			15	R4SBA
172.3	Callan Draw tributary	X		X	10	PEM1C
172.6	Callan Draw tributary	X		X	15	PEM1C
173.4	Callan Draw tributary	X		X	10	PEM1C
173.5	Callan Draw	X		X	20	PEM1C
174.4	Wheeler Draw tributary	X		X	10	PEM1C
175.0	Wheeler Draw tributary	X		X	10	PEM1C
175.7	Wheeler Draw	X		X	30	PEM1C
176.1	Miramonte Reservoir tributary	X		X	20	PEM1C
176.3	Miramonte Reservoir tributary	X		X	10	PEM1C
177.2	Log Corral Creek	X			15	PEM1C
178.4	Miramonte Reservoir tributary	X		X	20	PEM1C
178.7	Miramonte Reservoir tributary	X		X	10	PEM1C
179.1	Miramonte Reservoir tributary	X		X	50	PEM1C

TABLE C-2 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
179.2	Miramonte Reservoir tributary	X		X	50	PEM1C
179.7	West Naturita Creek	X			200	PSS1C
180.3	West Naturita Creek tributary	X		X	150	PFO1C
180.6	Miramonte Reservoir tributary	X		X	2,400	PFOK/PEM1C
183.7	Spectacle Creek[5]		X		40	PFO1C
188.0	Morrison Creek		X		10	R3SBC
	Morrison Creek Wetland Area			X	80, 60	PEM2A, PSS1C
189.5	Disappointment Creek		X		15	R3SBC
	Disappointment Creek Wetland Area			X	40	PEM2A
200.1	Unnamed Pond	X			20	PUBHh
200.6	Beaver Creek Tributary	X			15	PEM2A
201.1	Beaver Creek Tributary	X			15	PEM2A
202.5	Beaver Creek Tributary	X			15	PEM2A
202.9	Beaver Creek	X			20	PEM2C
206.7	Turkey Creek	X			20	PFO1C
207.1	Tributary of Turkey Creek	X			20	PFO1C
207.8	Boggy Draw	X			20	PFO1C
210.2	Tributary of Cox Canyon	X			20	PFO1C
210.3	Dolores River[5,7]		X		30	R3UBH
	Dolores River Riparian Zone			X	300	PFO1A
210.6	Longwill Spring drainage	X			15	PFO1A
211.4	Unnamed drainage	X			15	PFO1A
211.8	Hay Camp Spring drainage	X			15	PFO1A

APPENDIX C

TABLE C-2 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
212.4	Akin Reservoir drainage	X			15	PFO1A
212.7	Spruce Water Canyon	X			50	PFO1A
218.0	Lost Canyon Creek		X		50	PFO1C
219.4	Spring Creek	X			50	PFO1A
221.9	Turkey Creek	X			50	PFO1A
223.0	Chicken Creek tributary	X			20	PFO1A
224.2	Chicken Creek[5,7]		X		50	PEM2C
225.3	West Mancos River[5,7]		X		20	R2UB1H
225.3	West Mancos River Riparian Zone			X	200	PFO4C
228.5	Middle Mancos River[5,7]		X		30	R2UB1H
	Middle Mancos River Riparian Zone			X	50	PFO1A
231.0	East Mancos River[5,7]		X	X	50	R2UB1F/PFO1A
236.2	Cherry Creek	X			20	R4SBC
237.2	Devils Canyon	X			15	R4SBA
243.6	Alkali Gulch	X			15	R4SBA
	Alkali Gulch Riparian Zone			X	50	PSS1A
244.4	Alkali Gulch	X			15	R4SBA
	Alkali Gulch Riparian Zone			X	100	PSS1A
250.0	La Plata River		X		30	R2UB1H
254.6	La Plata River		X		30	R2UB1H
	La Plata River Hay Meadow			X	700	PEM2K
255.5	La Plata River		X		30	R2UB1H
257.0	La Plata River		X		30	R2UB1H
257.0	La Plata River Riparian Zone			X	1,200	PFO1A
258.0	Morgan Canyon	X			20	PFO1A

TABLE C-2 (Continued)

Approximate Milepost	Stream and Wetland Crossings	Flow Regime			Approximate Length Traversed (feet)	National Wetland Inventory Classification[4]
		I[1]	P[2]	WL/R[3]		
257.1	La Plata River Hay Meadow			X	800	PEM2K
259.6	La Plata River		X		30	R2UB1H
	La Plata River Riparian Zone				1,500	PFO1A
260.3	La Plata River		X		30	R2UB1H
260.6	La Plata River		X		30	R2UB1H
264.4	McDermott Arroyo	X			30	R4SBA
265.7	Jaquez Arroyo	X			20	R4SBA
270.6	Farmington Glade	X			50	R4SBA
278.3	Animas River[6]		X		150	R2UB1H
	Animas River Riparian Zone			X	300	PFO1A
279.2	Hart Canyon	X			100	R4SBA
281.4	North Knowlton Canyon	X			100	R4SBA

TABLE C-2 (Continued)

Footnotes:

[1]I = intermittent

[2]P = perennial

[3]WL/R = wetland/riparian

[4]NWI Classification

PEMA	- palustrine, emergent, temporarily flooded
PEM2A	- palustrine, emergent, nonpersistent, temporarily flooded
PEM1C	- palustrine, emergent, persistent, seasonally flooded
PEMZC	- palustrine, emergent, nonpersistent, seasonally flooded
PEMZK	- palustrine, emergent, nonpersistent, artificially flooded
PFOK	- palustrine, forested, artificially flooded
PFO1A	- palustrine, forested, broad leaved deciduous, temporarily flooded
PFO1Ab	- palustrine, forested, broad leaved deciduous, temporarily flooded, beaver
PFO1C	- palustrine, forested, broad leaved deciduous, seasonally flooded
PFO4C	- palustrine, forested, needle leaved evergreen, seasonally flooded
PSS1A	- palustrine, scrub shrub, broad leaved deciduous, temporarily flooded
PSS1C	- palustrine, scrub shrub, broad leaved deciduous, seasonally flooded
PUBHh	- palustrine, unconsolidated bottom, permanently flooded, diked impounded
R2UBF	- riverine, lower perennial, unconsolidated bottom, semi-permanently flooded
R2UBH	- riverine, lower perennial, unconsolidated bottom, permanently flooded
R2UC1F	- riverine, lower perennial, unconsolidated bottom, cobble gravel, semi-permanently flooded
R2UB1H	- riverine, lower perennial, unconsolidated bottom, cobble gravel, permanently flooded
R2US1F	- riverine, lower perennial, unconsolidated shore, cobble gravel, semi-permanently flooded
R3UBH	- riverine, upper perennial, unconsolidated bottom, permanently flooded
R3SBC	- riverine, upper perennial, stream bed, seasonally, flooded
R4SBA	- riverine, intermittent, streambed, temporarily flooded
R4SBC	- riverine, intermittent, streambed, seasonally flooded

[5]Aquatic Life, Class 1, Cold; Colorado - waters that are 1) capable of sustaining a wide variety of coldwater biota, including sensitive species, or 2) could sustain such biota for correctable water quality.

[6]Cold Water Fishery; New Mexico

[7]High Quality, Class 2 - high quality waters which are not designated as outstanding state or national resources. These waters should be maintained and protected at their existing quality.

APPENDIX D

TRANSCOLORADO GAS TRANSMISSION PROJECT
RECOMMENDED REVEGETATION SEED MIX
FOR PRIVATE AND STATE LANDS

TABLE D-1

TransColorado Gas Transmission Project - Recommended Revegetation Seed Mix

Vegetation Type	Basic Seed Mix[1]	Recommending Agency	Modifications/Comments (Agency, Mileposts)
Pasture/Agricultural			
Colorado			
Dryland	Paiute Orchardgrass - I,[2] 0.5 lb/acre PLS[3]		
	Regar Meadow Brome - (var.-I), 3 lbs/acre PLS	• SCS-La Plata County • CDOW	
	(Fairway) Crested Wheatgrass - I, 1 lbs/acre PLS		
	Jose Tall Wheatgrass - I, 3 lbs/acre PLS		
Irrigated	Orchardgrass (Not Paiute) - I, 1 lbs/acre PLS		
	Regar Meadow Brome - (var.-I), 4.5 lbs/acre PLS		
	Timothy - N, 0.5 lb/acre PLS		
	Meadow Foxtail - MN, 0.5 lb/acre PLS		
New Mexico			
Dryland	Paiute Orchardgrass - I, 3 lbs/ acre PLS		1. 50% Sand Dropseed/50% Blue Grama, 25 lbs/acre PLS (total mix), (SCS - San Juan County), MP = 270.8 - 302.2 (proposed route).
	(Fairway) Crested Wheatgrass - I, 5 lbs/acre PLS		
	Scarlet Globe Mallow - N, 1 lb/acre PLS		

TABLE D-1 (CONTINUED)

Vegetation Type	Basic Seed Mix[1]	Recommending Agency	Modifications/Comments (Agency, Mileposts)
Irrigated	Orchardgrass (not Paiute) - I, 10 lbs/acre PLS Tall Fescue - I, 7 lbs/acre PLS Tall Wheatgrass - I, or Meadow Brome - N, 8 lbs/acre PLS	• SCS - Jan Juan County	
Riparian			
Colorado	Garrison's Creeping Foxtail - N, 2 lbs/acre PLS Western Wheatgrass - N, 3 lbs/acre PLS Streambank Wheatgrass - N, 3.5 lbs/acre PLS Slender Wheatgrass - I, 2 lbs/acre PLS	• SCS - Montezuma/Dolores Counties	1. Replace Western Wheatgrass with 10% Smooth Brome and 10% Timothy (CDOW for SWAs) MP = 104.9 - 108.0, 163.9 - 171.0 (proposed route) 179.7-182.8 (agency preferred route). 2. Replace Western Wheatgrass and Slender Wheatgrass with Pubescent Wheatgrass and Paiute Wheatgrass
New Mexico	Tall Wheatgrass - I, 9 lbs/acre PLS Garrison's Creeping Foxtail - N, 8 lbs/acre PLS Western Wheatgrass - N, 8 lbs/acre PLS	• SCS - San Juan County	

TABLE D-1 (CONTINUED)

Vegetation Type	Basic Seed Mix[1]	Recommending Agency	Modifications/Comments (Agency, Mileposts)
Saltbush	Indian Ricegrass - N, 2.5 lbs/acre PLS Thickspike Wheatgrass - N, 4.5 lbs/acre PLS Galleta - N, 2.5 lbs/acre PLS Sodar Streambank Wheatgrass - N, 2.3 lbs/acre PLS Shadscale - 1 lbs/acre PLS	• SCS - Montrose County	1. Add 0.5 lb/acre PLS - Four-wing saltbush (CDOW for Escalante SWA) MP =104.9 - 108.0 (proposed route). 2. Replace Galleta and Thickspike Wheatgrass with 20% Bulbous Bluegrass, 20% Winterfat, and 20% Luna Pubescent Wheatgrass; add Four-wing Saltbush - 0.5 lb/acre (CDOW for Dry Creek SWA) MP = 163.9 - 171.0 (proposed route). 3. 22% Yellow Sweetclover, 26% Ephraim (Fairway) Crested Wheatgrass, 26% Critana Thickspike Wheatgrass, 27% Sodar Streambank Wheatgrass, 0.5 lb/acre PLS - Four-wing Saltbush, 1 lb/acre PLS - Shadscale (SCS - Delta County) MP = 94.1 - 111.0 (proposed route). 4. 33% Jose Tall Wheatgrass, 34% Alkali Sacaton, 33% Western Wheatgrass, 0.5 lb/acre PLS - Four-Wing Saltbush (SCS - San Miguel County) MP = 159.6 - 182.5 (proposed route), and 159.0-179.1 (agency preferred route).

TABLE D-1 (CONTINUED)

Vegetation Type	Basic Seed Mix[1]	Recommending Agency	Modifications/Comments (Agency, Mileposts)
Pinyon-Juniper/ Sagebrush/Grassland			
Colorado	(Fairway) Crested Wheatgrass - I, 2 lbs/acre, PLS Western Wheatgrass- N, 5 lbs/acre PLS Indian Ricegrass - N, 3 lbs/acre PLS Canby Bluegrass - I, 1 lb/acre PLS Four-Wing Saltbush - N, 0.5 lb/acre PLS	• SCS - Montezuma/Dolores Counties • SCS - San Miguel County	1. Add 1 lb/acre Paiute Orchardgrass (SCS - Garfield County) MP = 16.1 - 42.5 (proposed route), and (SCS - Rio Blanco County) MP = 0 - 16.1 (proposed route). 2. Eliminate Four-wing Saltbush (SCS - La Plata County) MP = 245.4 - 270.8 (proposed route). 3. Eliminate Canby Bluegrass; adjust percentages of others: 34% (Fairway) Crested Wheatgrass, 33% Western Wheatgrass, 33% Indian Ricegrass (SCS - Montrose County) MP = 111.0 - 159.6 (proposed route), 151.7 - 159.0 (agency preferred route). 4. Eliminate Western Wheatgrass and replace with 15% Bulbous Bluegrass, 5% Idaho Fescue, and 10% Yellow Sweetclover (CDOW for SWAS) MP = 104.9 - 108.0, 163.9 - 171.0 (proposed route), 179.7 - 182.8 (agency preferred route).
New Mexico			
Pinyon-Juniper	Indian Ricegrass - N, 4 lbs/acre PLS (Fairway) Crested Wheatgrass - I, 5 lbs/acre PLS Small Burnet - N, 2 lbs/acre PLS		Replace Small Burnet with Sand Dropseed (SCS - San Juan County) MP = 270.8 - 302.2 (proposed route).

TABLE D-1 (CONTINUED)

Vegetation Type	Basic Seed Mix[1]	Recommending Agency	Modifications/Comments (Agency, Mileposts)
Sagebrush/Grassland	Nordan Crested Wheatgrass - I, 4 lbs/acre PLS Russian Wild Rye - I, 4 lbs/acre PLS Scarlet Globe Mallow - N, 1.5 lbs/acre PLS		1. 40% Galleta, 35% Blue Grama, 25% Luna Pubescent Wheatgrass (SCS - San Juan County) MP = 270.8 - 302.2 (proposed route).
Mountain Shrub	Western Wheatgrass - N, 6 lbs/acre PLS Luna Pubescent Wheatgrass - I, 6 lbs/acre PLS Mountain Brome - N, 4 lbs/acre PLS	• SCS - Montezuma/Dolores Counties • SCS - La Plata County	1. Use Lincoln Smooth Brome in place of Mountain Brome (SCS - Rio Blanco County) MP = 0 - 16.1 (proposed route). 2. 5% Idaho Fescue, 10% Bulbous Bluegrass, 5% Yellow Sweetclover, 40% Luna Pubescent Wheatgrass, 20% Mountain Brome, 5% Indian Ricegrass, 10% Four-wing Saltbush, 5% Mountain Mahogany - 0.5 lb/acre PLS (CDOW - Lone Cone SWA) MP = 179.7 - 182.8 (agency preferred route).

TABLE D-1 (CONTINUED)

Vegetation Type	Basic Seed Mix[1]	Recommending Agency	Modifications/Comments (Agency, Mileposts)
Conifer - Pine, Conifer - Aspen, and Conifer - Douglas Fir	Arriba Western Wheatgrass - N, 8 lbs/acre PLS Slender Wheatgrass - I, 2 lbs/acre PLS Intermediate Wheatgrass - N, 3 lbs/acre PLS Arizona Fescue - N, 0.5 lb/acre PLS	• SCS - Montezuma/Dolores Counties	1. Replace Western Wheatgrass, Intermediate Wheatgrass, and Arizona Fescue with 30% Mountain Brome, 20% Idaho Fescue, and 30% Timothy (CDOW, Lone Cone SWA) MP = 179.7 - 182.8 (agency preferred route). 2. Specifically for Conifer-Douglas Fir type - 30% Hard Fescue - 1 lb/acre PLS, Kentucky Bluegrass - 0.5 lb/acre PLS, Slender Wheatgrass - 3.5 lbs/acre PLS, Smooth Brome - 2.5 lbs/acre PLS (SCS - Garfield County) MP = 16.1 - 42.5 (proposed route). 3. Specifically for Conifer-Douglas Fir type - 30% Hard Fescue, 20% Orchardgrass, 15% Idaho Fescue, 5% Timothy, 20% Smooth Brome, 10% Slender Wheatgrass (CDOW - for Escalante, Dry Creek, and Lone Cone SWAs) MP = 104.9 - 108.0, 163.9 - 171.0 (proposed route), 179.7 - 182.8 (agency preferred route). 4. Replace Western Wheatgrass, Intermediate Wheatgrass, and Arizona Fescue with Mountain Brome - 8.5 lbs/acre PLS, and Timothy - 1 lb/acre PLS, (SCS - Montrose County) MP = 111.0 - 159.6 (proposed route) 151.7 - 159.0 (agency preferred route).

[1] All rates are for drilled seed (not broadcast)
[2] I = Introduced, N = Native, MN = Modified Native
[3] PLS = Pure Live Seed

TABLE D-1 (CONTINUED)

Plant Species Included in the Recommended Revegetation Seed Mixtures:

Common Name*	Scientific Name	Common Name	Scientific Name
Bluegrass, Canby - I	*Poa canbyi*	Ricegrass, Indian - N	*Oryzopsis hymensides*
Bluegrass, Bulbous - N	*Poa bulbosa*	Rye, Russian Wild - I	*Elymus junceus*
Bluegrass, Kentucky - N	*Poa pratensis*	Sacaton, Alkali - N	*Sporobolus airoides*
Brome, Lincoln Smooth - I	*Bromus inermis* var. *'Lincoln'*	Saltbush, Fourwing - N	*Atriplex canescens*
Brome, Regai Meadow - (var.-1)	*Bromus erectus* var. *'Regar'*	Shadscale	*Atriplex confertifolia*
Brome, Mountain - N	*Bromus marginatus*	Sweetclover, Yellow - I	*Melilotus officinalis*
Brome, Smooth - I	*Bromus inermis*	Timothy - N	*Phleum pratense*
Brome, Meadow - N	*Bromus erectus*	Wheatgrass, Critana Thickspike - N	*Agropyron dasystachyum*
Burnet, Small - N	*Sanguisorba minor*	Wheatgrass, Jose Tall - I	*Agropyron elongatum* var. *'Jose'*
Canarygrass, Reed - N	*Phalaris arundinacea*	Wheatgrass, Pubescent - I	*Agropyron trichophorum*
Dropseed, Sand - N	*Sporobolus cryptandrus*	Wheatgrass, Crested (Fairway) - I	*Agropyron cristatum*
Fescue, Tall - I	*Festuca arundinacea*	Wheatgrass, Arriba Western - N	*Agropyron smithii* var. *'Arriba'*
Fescue, Hard - I	*Festuca ovina* var. *'duriuscula'*	Wheatgrass, Thickspike	*Agropyron dasystachyum*
Fescue, Arizona - N	*Festuca arizonica*	Wheatgrass, Slender - I	*Agropyron trachycaulum*
Fescue, Idaho - N	*Festuca idahoensis*	Wheatgrass, Streambank - N	*Agropyron riparium*
Foxtail, Meadow - MN	*Alopecurus pratensis*	Wheatgrass, Western - N	*Agropyron smithii*
Galleta - N	*Hilaria jamesii*	Wheatgrass, Intermediate - N	*Agropyron intermedium*
Grama, Blue - N	*Bouteloua gracilis*	Wheatgrass, Soda Streambank - N	*Agropyron riparium* var. *'Sodar'*
Mallow, Scarlet Globe - N	*Sphaeralcea coccinea*	Wheatgrass, Tall - I	*Agropyron elongatum*
Orchardgrass (not Paiute) - I	*Dactylis glomerata*	Wheatgrass, Nordan Crested - I	*Agropyron desertorum* var. *'Nordan'*
Orchardgrass, Paiute - I	*Dactylis glomerata* var. *'Paiute'*	Wheatgrass, Luna Pubescent - I	*Agropyron trichophorum* var. *'Luna'*

*I = Introduced
N = Native
MN = Modified Native

APPENDIX E

THREATENED AND ENDANGERED SPECIES

APPENDIX E

Threatened and Endangered Species Section 7 Consultation

Based on the list provided by the U.S. Fish and Wildlife Service (USFWS), the proposed pipeline crosses potential for habitat federally listed plants and animals, plants and animals proposed for listing, and species that are Category 1 or 2 candidates for listing. These species, the state-listed, and USFWS sensitive species are presented in this appendix, Table E-1. Also presented at the end of this appendix is the USFWS draft biological opinion (BO) giving a preliminary non-jeopardy opinion for the species that could be affected by the pipeline. This draft BO is based on an incomplete inventory of threatened and endangered species along the final EIS agency preferred route and a draft biological assessment (BA).

The USFWS final BO will be rendered following completion of the inventories and final BA. The final BO will be included in the BLM and USFS records of decision (ROD). The ROD will be issued following publication of this final EIS. If the findings in the final BA and final BO are significantly different than those presented in the draft BA and draft BO, additional supplemental environmental analysis will be conducted. The additional environmental analysis will also be included in the RODs along with any additional mitigation.

TABLE E-1

Endangered, Threatened, Candidate, and Sensitive Plant and Wildlife Species Potentially Occurring Along the Proposed, Agency Preferred and Variations of the TransColorado Pipeline

Major Group	Common Name	Scientific Name	Status[1]				General Habitat	Route[2] Segments of Potential Occurrence
			Federal	Colorado	New Mexico	Forest Service		
Mammals	Black-footed ferret	Mustela nigripes	E	E	E		No recent sightings, but potential habitat exists in prairie dog towns.	All
	River otter	Lutra canadensis	--	E	--	S	Reintroduced into Gunnison River.	P, AP, SJV
	North American wolverine	Gulo gulo var. luscus	C2	E	--	S	No recent sightings, but unconfirmed locations have been reported for Colorado. Higher elevation conifer forests.	P, AP, AV
	Mink	Mustela vision	--	--	E		Riparian habitat on San Juan, La Plata, and Animas Rivers in New Mexico.	All
	North American Lynx	Felis lynx var. canadensis	C2	E	--	S	Potentially occurs in conifer forests above 9,000 feet.	P, AP, AV

TABLE E-1 (CONTINUED)

Major Group	Common Name	Scientific Name	Status[1] Federal	Colorado	New Mexico	Forest Service	General Habitat	Route[2] Segments of Potential Occurrence
Birds								
	Peregrine falcon	Falco peregrinus	E	E	E		Resident found along Dolores River, Black Canyon, Navajo Reservoir and Animas River.	All
	Bald eagle	Haliaeetus leucocephalus	E	E	E		Wintering resident along Colorado, Gunnison, San Miguel, Dolores, Animas, and La Plata Rivers, nesting in Durango and Cortez regions.	All
	Whooping crane	Grus americana	E	E	E		Rare fall and spring migrant.	P, AP, GV
	Mexican spotted owl	Strix occidentalis var. lucida	PT	--	--	S	Steep, narrow canyons with rock faces and mixed conifer-forest.	All
	Burrowing owl	Athene cunicularia	I	--	--		Open areas in prairies, sagebrush, flats, pinyon-juniper slopes, and wherever rodent burrows are abundant.	All
	Swainson's Hawk	Buteo swainsoni	3C	--	--		Non-forested lowlands with open foraging areas.	All
	Ferruginous hawk	Buteo regalis	C2	--	--	S	Salt desert shrub, sagebrush, grassland communities.	All
	White-faced ibis	Plegadis chihi	C2	--	--	S	Migrant found along Uncompahgre and Gunnison Rivers.	All
	Long-billed curlew	Numenius americanus	3C	--	--		Salt desert shrub communities and cropland, Uncompahgre Valley and North Fork.	All

TABLE E-1 (CONTINUED)

Major Group	Common Name	Scientific Name	Status[1] Federal	Colorado	New Mexico	Forest Service	General Habitat	Route[2] Segments of Potential Occurrence
	Gray Vireo	Vireo vicinior	--	--	E		Pinyon Juniper - woodlands near Animas River	P, A, P
	Greater sandhill crane	Grus canadensis	--	E	--		Fall and spring migrant.	All
	Mountain plover	Chardrius montanus	C2	--	--	S	Dry grasslands, saltbush, and sagebrush habitats.	All
	Western snowy plover	Charadrius alexandrinus var. nivosus	C2	--	--	S	Shores of alkaline lakes, ponds.	All
	Northern Goshawk	Accipiter gentilis	C2	--	--	S	Coniferous forests.	All
	Southwestern willow flycatcher	Empidomax trailii var. extimus	C1	--	--	S	Shrubs dominated riparian zones	All
	Golden eagle*	Aquila chrysaetos	--	--	--		Occurs over a variety of habitats, generally nests on cliff faces and rock outcrops.	All
Fish								
	Colorado squawfish	Ptychocheilus lucius	E	E	--		Resident in Lower Gunnison and Colorado Rivers.	P, AP, GV
	Razorback sucker	Xyrauchen texanus	PE	E	--	S	Occurs below confluence of Colorado River from Debeque, Colorado. Potential habitat in Lower Gunnison below Redland Diversion.	P, AP, GV
	Bonytail chub	Gila elegans	E	E			No recent records, but historically occur in Colorado River.	P, AP, GV

TABLE E-1 (CONTINUED)

Major Group	Common Name	Scientific Name	Status[1]				General Habitat	Route[2] Segments of Potential Occurrence
			Federal	Colorado	New Mexico	Forest Service		
	Humpback chub	Gila cypha	E	E	–		Resident in Colorado and Gunnison Rivers near Grand Junction.	P, AP, GV
	Colorado River cutthroat trout	Salmo clarki pleuriticus	C2	–	–	S	Resident in Colorado River.	P, AP, GV
	Roundtail chub	Gila robusta	C2	–	E		Animas, LaPlata, Colorado, and Gunnison Rivers	P, AP, SJV
	Flannelmouth sucker	Catostomus latipinnis	C2	–	–		Animas, LaPlata, Colorado, and Gunnison Rivers	P, A, P
	Mottled sculpin*	Cottus bairdi	–	–	–		Animas River.	P, AP, SJV
Amphibians								
	Boreal western toad	Bufo boreas var. boreas	C2	–	E	S	Marshes, wet meadows, and ponds/stream margins, subalpine areas in Colorado	P, AP
Plants								
	Spineless hedgehog cactus	Echinocereus triglochidiatus var. inermis	E	1	–		Shallow sandstone soil associated with bedrock at or near the surface.	P, AP
	Uinta Basin hookless cactus	Sclerocactus glaucus	T	1	–		Rocky soils.	P, AP, GV
	Mesa Verde cactus	Sclerocactus mesae-verdae	T	1	–		Dry, clay soils at 4,000 to 5,000-foot elevations.	AP, AV, SJV
	Dudley Bluffs twinpod	Physaria obcordata	T	1	–		Barren slopes of weathering oil shale.	P, AP, GV

TABLE E-1 (CONTINUED)

Major Group	Common Name	Scientific Name	Status[1] Federal	Colorado	New Mexico	Forest Service	General Habitat	Route[2] Segments of Potential Occurrence
	Knowlton's cactus	Pediocactus knowltonii	E	1	E		Pinyon-juniper, gravelly soils. Extremely rare and localized.	P, AP, AV
	Mancos milkvetch	Atriplex humillimus	E	1	E		Sand soil pockets in sandstone.	SJV
	Mancos saltbush	Atriplex pleiantha	PE	1	E		Barren clay soils, Mancos shale.	SJV
	Dudley Bluffs bladderpod	Lesquerella congesta	T	1	--		Barren slopes of weathering oil shale.	P, AP, GV
	Clay-loving wild buckwheat	Eriogonum pelinophilum	E	1	--		Barren adobe clay soils, Mancos shale.	P, U
	Beautiful gilia	Gilia formosa	C2	--	E		Badland areas east of Aztec and Bloomfield, NM.	SJV, P, AP, AV
	Delta lomatium	Lomatium concinnum	C2	1	--		Low altitude Mancos shale areas in association with saltbush near Hotchkiss and Montrose.	P, AP
	Adobe beardtongue	Penstemon retrorsus	C2	1	--		Mancos shale outcrops.	P, AP
	De Beque milkvetch	Astragalus debequaeus	C2	1	--		Clay soils, Wasatch Formation	P, AP
	DeBeque phacelia	Phacelia submutica	C1	1	--		Barren clay soils, margins of Colorado River Valley.	P, AP, GV
	San Juan milkweed	Asclepias sanjuanensis	C2	--	S		Eroded sandy soils.	SJV
	Hard wall cactus	Schlerocactus whipplei	--	--	E		Gravelly, sandy ground, associated with pinyon-juniper	P, SJV, AP

TABLE E-1 (CONTINUED)

Major Group	Common Name	Scientific Name	Status[1] Federal	Colorado	New Mexico	Forest Service	General Habitat	Route[2] Segments of Potential Occurrence
	Wetherill milkvetch	Astragalus wetherillii	C2	3	–		Bushy slopes.	SJW
	Weak-stemmed mariposa lily	Calochortus flexuosus	–	2	–		Dry slopes and plains.	SJW
	Hanging garden sullivantia	Sullivantia purpusii	–	4	–		Springs and seeps associated with cliffs and rock outcrops.	P, AP, GV
	Shale columbine	Aquilegia barnebyi	–	4	–		Seeps in Green River Formation	P, AP, GV
	Sun-loving meadowrue	Thalictrum heliophilum	3C	4	–		Decomposing shale, Piceance Basin.	P, AP, GV
	Naturita milkvetch	Astragalus naturitensis	–	2	S		Sandstone ledger, crevices of sandstone.	P, AP, SJV
	Tall cryptantha	Cryptantha elata	–	4	–		Shallow, loamy soils with some rock outcrops	P, AP, GV
	Small flower beardtongue	Penstemon parviflorus	C2	1	–		Near Mancos, Montezuma County.	P, AP, SJV
	Arboles milkvetch	Astragalus oocalycis	–	4	S		Alkaline clay soils on slopes and along arroyos.	P, AP, SJV, AV
	Utah fescue	Festuca dasyclada	3C	4	–		Green River Formation Tulus slopes.	GV, P, AP
	Piceance bladderpod	Lesquerella parviflora	3C	1	–		Barren slopes of weathering oil shale.	GV, P, AP
	Narrowstem gilia	Gilia stenothyrsa	–	2	–		Pinyon-juniper.	P, AP, GV
	Grand buckwheat	Eriogonum contortum	–	4	–		Clayey loam soils on hills	GV

TABLE E-1 (CONTINUED)

Major Group	Common Name	Scientific Name	Status[1] Federal	Colorado	New Mexico	Forest Service	General Habitat	Route[2] Segments of Potential Occurrence
	Cottaim's milkvetch	Astragalus monumentalis var. cottamii	--	--	S		Depressions, and crevices of sandstone rimrock.	SJV, P, AV, AP
	Paradox Valley Cryptantha	Cryptantha paradoxa	--	--	S		Sandy loam soils on hills	SJV
	Scorpionweed	Phacelia splendens	--	--	S		Dry, sandy hills	SJV
	Spiny-leaf milkvetch	Astragalus kentrophyta var. neomexicanus	--	--	S		Gullied bluffs, badlands, dunes, and roadsides.	P, AP, AV, SJV
	Monument Valley milkvetch	Astragalus monumentalis var. monumentalis	--	--	S		Rock cracks, sandy ledges, and slopes among pinyon-juniper.	P, AP, AV, SJV
	Grand Junction milkvetch	Astragalus linifolius	3C	1	--		Canyonsides, E base of Uncompahgre Plateau and Dolores River.	P, AP, GV, MVE
	Deluvium lady's tresses	Spiranthes diluvialis	C1	1	--		Streamsides, wetlands.	
	Bigtooth maple	Acer grandidentatum	--	2	--		North face of Mesa Verde Cliffs.	SJV, AP
	Rocky Mountain thistle	Cirsium perplexans	--	2	--		Adobe hills in the Colorado and Gunnison River Valleys.	P, AP, GV
	Nakedstem	Enceliopsis nudicaulis	--	2	--		Mancos shale hills.	P, AP
	Helleborine	Epipactis gigantea	--	2	--		Moist, protected alcoves of sandstone canyon walls, W Counties.	All
	Plateau penstemon	Penstemon scariosus	--	2	--		Pinyon-juniper hills	GV

TABLE E-1 (CONTINUED)

Major Group	Common Name	Scientific Name	Status[1] Federal	Colorado	New Mexico	Forest Service	General Habitat	Route[2] Segments of Potential Occurrence
	Bitterroot	Lewisia rediviva	--	3	--		Gravelly flats and on seasonally wet sagebrush benches Moffatt County.	P, AP
	Paradox breadroot	Pediomelum aromaticum	--	3	--		Adobe hills, Mesa and Montrose Counties.	P, AP
	Large-flowered breadroot	Pediomelum megalanthum	--	3	--		Adobe hills, Mesa and Montrose Counties.	P, AP

[1] E = Endangered
T = Threatened
PE = Proposed-endangered
PT = Proposed-threatened
C1 = Federal candidate, Category 1, for federal listing
C2 = Federal candidate, Category 2, for federal listing
3C = Federal candidate, Category 3C no longer being considered for federal listing
Current information indicates species more widespread than previously thought.
I = Species of high interest
S = Sensitive
* = Species that are not federally listed or state sensitive species but are classified as sensitive species by the Navajo Natural Heritage Program.
1 = Federal threatened or endangered plant species and species that are rare throughout their range, including a number of species which only occur in Colorado.
2 = Plant species which are rare in Colorado but relatively common elsewhere within their range.
3 = Plant species which appear to be rare but for which conclusive information is lacking.
4 = Plant species of limited distribution or special interest which appear secure at this time.
FS = Forest Service Sensitive Species (from Draft Region 2 sensitive species list).

[2] P = Proposed Route
AV = Animas Valley Route Variation
AP = Agency Preferred Route
GV = Grand Valley Route Variation
SJV = San Juan Valley Route Variation

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Draft Biological Opinion
TransColorado Gas Transmission Pipeline,
Response to Draft Biological Assessment No. 6777-001-540

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
Colorado State Office
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TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
FWS/GJ-6-CO-92-F-010

June 8, 1992

Memorandum

To: District Manager, Bureau of Land Management, Montrose District Office, Montrose, Colorado

From: Colorado State Supervisor, Fish and Wildlife Enhancement, U.S. Fish and Wildlife Service, Golden, Colorado

Subject: Draft Biological Opinion, TransColorado Gas Transmission Pipeline, Response to Draft Biological Assessment No. 6777-001-540

This draft biological opinion has been based on a draft biological assessment of the TransColorado Pipeline project. The biological opinion is subject to change based on further information to be obtained during inventories during the summer of 1992. The draft opinion addresses federally listed endangered fishes and the Uinta Basin hookless cactus. Other federally listed species may be addressed in the final biological opinion. Based upon existing information, we concur with the finding of "no effect" for the other listed species considered in the draft biological assessment.

Only after the final biological assessment has been received will the Fish and Wildlife Service (Service) issue a final biological opinion. The Service must also receive a copy of a letter stating that TransColorado Gas Transmission Company (TransColorado) will agree to all conservation measures outlined in the draft biological opinion before we will issue a final biological opinion.

Colorado Gas Transmission Pipeline
Draft Biological Opinion

FWS/GJ-6-CO-92-F-010

INTRODUCTION

In accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) and the Interagency Cooperation regulations (50 CFR 402), this transmits the Fish and Wildlife Service's (Service) biological opinion for impacts to federally listed endangered species. This opinion is provided to you as the lead Federal agency regarding Section 7 consultation on this project. Copies of this opinion are being provided to the above referenced applicant since the Service has incorporated conservation measures that should be included as conditions of any permits issued by the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) for this project.

The Service concurs that the annual depletion of water from the Colorado River "may affect" the endangered Colorado squawfish (Ptychocheilus lucius), humpback chub (Gila cypha), bonytail chub (Gila elegans), and razorback sucker (Xyrauchen texanus). The Service also concurs that removal of 20 Uinta Basin hookless cactus (Sclerocactus glaucus) "may affect" this species.

BIOLOGICAL OPINION

Based upon the best scientific and commercial information that is currently available, it is the Service's biological opinion that the construction of the proposed TransColorado Gas Transmission Pipeline, as described below, is not likely to jeopardize the continued existence of the Colorado squawfish, humpback chub, bonytail chub, razorback sucker, or Uinta Basin hookless cactus provided that the Conservation Measures described in this document are implemented. In a letter dated ---------, the TransColorado Pipeline Company agreed to implement the Conservation Measures that we believe are necessary to offset the likelihood of jeopardy. These Conservation Measures should be included as stipulations or conditions of the BLM and USFS permits.

Project Description

TransColorado Gas Transmission Company proposes to construct, operate, and maintain a 22 and 24 inch diameter natural gas transmission pipeline system between the Piceance Basin and the Blanco Plant near Bloomfield, New Mexico. Interconnects with other gas pipelines would occur in the Bloomfield area. The preferred pipeline would be 290 miles in length, with about 3 miles of interconnecting pipeline. The project would disturb about 2,640 acres, which includes lands disturbed by pipeline construction, six new compressor stations, and six meter stations. Some of the acreage to be disturbed has been previously disturbed by other projects. No new roads would be constructed, but about 165 miles of existing roadways would be graded or improved.

Construction ROW would be 75 feet in most areas, and the operational ROW would

be 50 feet. In some areas, such as steep sideslopes the construction ROW would be wider, and in some cases, the construction ROW would be less than 75 feet to protect sensitive resources. The proposed pipeline parallels other pipelines or utilities for 180 miles, with a 25 to 50 foot offset from those other utilities, resulting in a shared ROW. Clearing of vegetation would be kept to the minimum necessary to allow adequate room for construction equipment.

Construction would require the use of an estimated 7.74 acre-feet of surface water, and 3.30 acre-feet of municipal water for dust abatement during construction. Dust abatement water would be withdrawn from most streams at the point of pipeline crossing (the Uncompahgre River would be an exception; water would be withdrawn upstream of the Gunnison River and downstream of Delta). Construction would also require the temporary use of a total estimated 51.78 acre feet of surface water, withdrawn from streams, for hydrostatic testing of the pipeline. Of this 5.53 acre-feet would be temporarily removed from habitat occupied be endangered fishes, and transferred to another drainage, within the upper Colorado River basin. Hydrostatic test water would be withdrawn from streams and discharged into them at the points where the pipeline crosses the streams.

Listed Fishes; Upper Colorado River

Basis for Opinion

This section of the biological opinion addresses the average annual depletion of approximately 12.89 acre-feet of water from the upper Colorado River.

Water depletions in the Upper Colorado River Basin have been recognized as a major source of impact to endangered fish species. Continued water withdrawal has restricted the ability of the Colorado River system to produce flow conditions required by various life stages of the fishes. Impoundments and diversions have reduced peak discharges by 50 percent since 1942 while increasing base flows by 21 percent in some reaches. These depletions along with a number of other factors have resulted in such drastic reductions in the populations of Colorado squawfish, humpback chub, bonytail chub and razorback sucker that the Service has listed these species as endangered and has implemented programs to prevent them from becoming extinct.

Colorado Squawfish

The Colorado squawfish evolved as the main predator in the Colorado River system. The diet of Colorado squawfish longer than three or four inches consists almost entirely of other fishes (Vanicek and Kramer 1969). The Colorado squawfish is the largest cyprinid fish (minnow family) native to North America and, during pre-development times, may have grown as large as six feet in length and weighed nearly 100 pounds (Behnke and Benson 1983). These large fish may have been 25-50 years of age.

Based on early fish collection records, archaeological finds and other observations, the Colorado squawfish was once found throughout warm water

reaches of the entire Colorado River Basin, including reaches of the upper Colorado River and its major tributaries, the Green River and its major tributaries, and the Gila River system in Arizona (Seethaler 1978). Colorado squawfish were apparently never found in colder, headwater areas. Seethaler (1978) indicates that the species was abundant in suitable habitat throughout the entire Colorado River basin prior to the 1850's. Historically, Colorado squawfish have been collected in the upper Colorado River as far upstream as Parachute Creek, Colorado (Kidd 1977).

A marked decline in Colorado squawfish populations can be closely correlated with the construction of dams and reservoirs during the 1960's, the introduction of nonnative fishes, and the removal of water from the Colorado River system. Behnke and Benson (1983) summarized the decline of the natural ecosystem. They pointed out that dams, impoundments, and water use practices are probably the major reasons for drastically modified natural river flows and channel characteristics in the Colorado River Basin. Dams on the mainstem have essentially segmented the river system, blocking Colorado squawfish spawning migrations and drastically changing river characteristics, especially flows and temperatures. In addition, major changes in species composition have occurred due to the introduction of nonnative fishes, many of which have thrived as a result of changes in the natural riverine system (i.e., flow and temperature regimes). The decline of endemic Colorado River fishes seems to be at least partially related to competition or other behavioral interactions with nonnative species, which have perhaps been exacerbated by alterations in the natural fluvial environment.

The Colorado squawfish currently occupies about 1,030 river miles in the Colorado River system (25 percent of its original range) and is presently found only in the upper Colorado River Basin above Glen Canyon Dam. It inhabits about 350 miles of the mainstem Green River from its mouth to the mouth of the Yampa River. Its range also extends 140 miles up the Yampa River and 104 miles up the White River, the two major tributaries of the Green River. In the mainstem Colorado River, it is currently found from Lake Powell extending about 201 miles upstream to Palisade, Colorado, and in the lower 33 miles of the Gunnison River, a tributary to the mainstem Colorado River (Tyus et al. 1982). Recent investigation found adult Colorado squawfish inhabit the San Juan River as far upstream as 163.3 miles above Lake Powell.

The life stages that appear to be most critical are from egg fertilization through its first year of life. It has been demonstrated that these phases of Colorado squawfish development are also closely tied to some specific habitat requirements. It is imperative that proper flows and temperatures are provided during these essential life stages. The conservation measures outlined below will help further investigate and meet the habitat requirements of the Colorado squawfish, thus offsetting project-related impacts and the likelihood of jeopardy for the species.

Humpback chub

Humpback chub generally do not make migrational movements in the upper Colorado River and tend to reside throughout the year within a limited reach

of river. Humpback chub are found inhabiting narrow, deep canyon areas, and are relatively restricted in distribution. They seldom leave their canyon habitat (Service 1982). While humpback chub are regularly found dispersed in the Green and Yampa Rivers, the only major populations of humpback chub known to exist in the upper Colorado River basin are located in Black Rocks and Westwater Canyons on the Colorado River. Conservation measures outlined below will contribute to providing proper habitat conditions for humpback chub, thus offsetting the likelihood of jeopardy for the species.

Bonytail chub

Little is known about the biological requirements of the bonytail chub, as the species greatly declined in numbers in the upper basin shortly after 1960. Until recently, the Service considered the species extirpated from the upper basin; however, a recently collected specimen which exhibits many bonytail characteristics could indicate a small, extant population. It is thought that, should this species persist in the Colorado River, the preferred habitat would be larger river reaches in the Colorado River. Conservation measures outlined below will contribute to conservation efforts for the bonytail chub, thus offsetting the likelihood of jeopardy for the species.

Razorback sucker

The current distribution and abundance of razorback suckers have been significantly reduced throughout the Colorado River system (Holden and Stalnaker 1975, McAda and Wydoski 1980, Minckley 1983, McAda 1987, Tyus 1987, Marsh and Minckley 1989). Above Glen Canyon Dam, razorback suckers are found in limited numbers in both lentic and lotic environments. The largest population of razorback suckers in the upper Colorado River basin is found in the upper Green River and lower Yampa River (Tyus 1987). Lanigan and Tyus (1989) estimated that from 758 to 1,138 razorback suckers inhabit the upper Green River. In the Colorado River, most razorback suckers occur in the Grand Valley area near Grand Junction, Colorado; however, they are increasingly rare. Osmundson and Kaeding (1990) report that the number of razorback sucker captures in the Grand Junction area have declined dramatically since 1974.

Specific information on biological and physical habitat requirements of the razorback sucker is very limited. Habitat requirements of young and juvenile razorback suckers in the wild are largely unknown, particularly in native riverine environments. Life stages, other than adults, have not been collected anywhere in the upper Colorado River basin in recent times. The last confirmed documentation of a razorback sucker juvenile in the upper Colorado River basin was a capture in the 1960's in the Colorado River near Moab, Utah (Taba et al. 1965, report in Bestgen 1990). The virtual absence of any recruitment suggests a combination of biological, physical, and/or chemical factors that may be effecting the survival and recruitment of early life stages of razorback suckers. Conservation measures outlined below will contribute to conservation efforts for the razorback sucker, thus offsetting the likelihood of jeopardy for the species.

CONSERVATION MEASURES

On January 21-22, 1988, the Secretary of the Interior, the governors of Wyoming, Colorado, and Utah, and the Administrator of the Western Area Power Administration were cosigners of a Cooperative Agreement to implement the "Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin" (Recovery Program). An objective of the Recovery Program was to identify reasonable and prudent alternatives that would ensure the survival and recovery of the listed species while providing for new water development in the Upper Colorado River Basin.

The following excerpts are pertinent to the consultation because they summarize portions of the Recovery Program that address depletion impacts, Section 7 consultation, and project proponent responsibilities:

> "All future Section 7 consultations completed after approval and implementation of this program (establishment of the Implementation Committee, provision of congressional funding, and initiation of the elements) will result in a one-time contribution to be paid to the Service by water project proponents in the amount of $10.00 per acre-foot based on the average annual depletion of the project.... This figure will be adjusted annually for inflation *[the current figure is $11.50 per acre-foot]*... Concurrently with the completion of the Federal action which initiated the consultation, e.g., ...issuance of a 404 permit, 10 percent of the total contribution will be provided. The balance...will be...due at the time the construction commences...."

It is important to note that these provisions of the Recovery Program were based on appropriate legal protection of the instream flow needs of the endangered Colorado River fishes. The Recovery Program further states:

> "...it is necessary to protect and manage sufficient habitat to support self-sustaining populations of these species. One way to accomplish this is to provide long term protection of the habitat by acquiring or appropriating water rights to ensure instream flows.... Since this program sets in place a mechanism and a commitment to assure that the instream flows are protected under State law, <u>the Service will consider these elements under Section 7 consultation as offsetting project depletion impacts</u>."

Thus, the Service has determined that project depletion impacts, which the Service has consistently maintained are likely to jeopardize the listed fishes, can be offset by (a) the water project proponents one-time contribution to the Recovery Program in the amount of $11.50 per acre-foot of

the project's average annual depletion, and (b) appropriate legal protection of instream flows pursuant to State law. The Service believes it is essential that protection of instream flows proceed expeditiously, before significant water depletions occur.

With respect to (a) above (i.e., depletion charge), the applicant will make a one-time payment which has been calculated by multiplying the project's average annual depletion (12.89 acre-feet) by the depletion charge in effect at the time payment is made. For fiscal year 1992 (October 1, 1991, to September 30, 1992), the depletion charge is $11.50 per acre-foot of the average annual depletion which equals a total payment of $148.24 for this project. This amount will be adjusted annually for inflation on October 1 of each year based on the previous year's Composite Consumer Price Index. The Service will notify the applicant of any change in the depletion charge by September 1 of each year. Ten percent of the total contribution ($14.82) or total payment, will be provided to the Service or its designated agent at the time of issuance of the Federal approvals from the BLM/USFS. The balance will be due at the time the construction commences. The payment will be included by the BLM/USFS as a permit stipulation. The amount payable will be adjusted annually for inflation on October 1 of each year based on the Composite Consumer Price Index. Fifty percent of the funds will be used for acquisition of water rights to meet the instream flow needs of the endangered fishes (unless otherwise recommended by the Implementation Committee); the balance will be used to support other recovery activities for the Colorado River endangered fishes. Payment should be made to the National Fish and Wildlife Foundation (see appendix A). In a letter dated _____, 199_ (Appendix B), TransColorado Gas Transmission Company agreed to this payment.

Listed Fishes; San Juan Basin

Basis for Opinion

The potential effects of the water depletions proposed by TransColorado, have been analyzed in the context of ongoing consultations, commitments and agreements in the San Juan River Basin. Of primary concern is the quantity and quality of water provided to and through the habitat of the endangered Colorado squawfish and razorback sucker in the San Juan River, including the water provided by the major tributaries such as the Animas and La Plata Rivers. The amounts of water diverted and depleted from the waters of the San Juan River Basin through the construction of the pipeline is considered minor. It is, therefore, not considered likely that the loss of such a small proportion of the total flow would jeopardize the continued existence of the species under consideration. However, actions which may impact the water quality of the San Juan River and its tributaries will take place in conjunction with the construction of the pipeline. Potential threats caused by impacts to water quality outweigh the potential impacts caused by removal of surface water from the river. The release of Polycyclic Aromatic Hydrocarbons (PAH) into the San Juan River via the disturbance of contaminated bottom sediments in its tributaries could adversely effect the Colorado squawfish, razorback sucker, and humpback chub.

The Service will not consider water depletions to the San Juan River Basin as jeopardy to the endangered fishes if it is determined that sufficient progress as outlined under the Recovery Implementation Program (Program) for the San Juan River Basin has been made to offset impacts to the endangered fishes. The Service will determine if sufficient progress has been made under the Program based on the best available biological data and professional judgement. The Service will assess sufficient progress in proportion to the potential jeopardy impacts of a proposed Federal action. That is, the smaller the impact of a Federal action, the lower the level of progress needed to offset the impacts. If progress under the Program has not been sufficient, additional conservation measures (measures) will be required from the Federal agency or the project sponsor(s) to offset impacts of the Federal action which are likely to jeopardize listed fish.

During and after a 7 year research period (as described in the Animas-La Plata biological opinion) on the San Juan River and its tributaries, significant new information will be available on the listed fishes. Also, certain recovery actions will have been implemented to benefit the listed fishes. Such information and actions will constitute progress under the Program and will be considered by the Service in determining whether progress has been sufficient to offset impacts of future Federal actions which are likely to jeopardize listed fishes.

During the 7 year research period, additional Federal actions resulting in water depletions will be subject to Section 7 consultations. In rendering biological opinions on Federal actions resulting in minor depletions, the Service will consider good faith implementation of the Program in determining if sufficient progress has been made to offset depletion impacts, if any, on listed fishes. It is understood that minor depletions may reach an aggregate of 3,000 acre-feet in any one year (that is, the 3,000 acre-feet is not additive from year to year).

The following are some examples of measures that the Servcie will consider in determining if progress has been sufficient to offset jeopardy impacts of future Federal actions under Section 7 consultation in the San Juan River Basin:

- support and participation by the parties in developing and carrying out the Program (including adequate funding)
- Identification of flow needs for the listed fishes
- Acquisition of water for the benefit of listed fishes
- Legal protection of water, including protection of reservoir storage releases, for the benefit of the listed fishes to and through their habitat
- Modification of Federal projects to maintain the level of depletions in the Section 7 environmental baseline as described in the biological opinion for the Animas-La Plata
- Operation or modification of Federal projects to benefit listed fishes
- Modifications to existing and proposed Federal actions (i.e., measures to lessen impacts to listed fishes
- Improvements to water quality in habitat areas used by listed fishes

- Physical habitat enchancement (e.g., removal of barriers, construction of fish passage facilities, improvement of spawning and nursery habitats, etc.)
- Control of exotic species
- Augmentation of listed fishes populations if determined to be biologically necessary
- Research and studies carried out in accordance with the Program
- Indications that listed fishes populations or habitats are improving

At this time, the operation of Navajo Reservoir to mimic the natural hydrograph; the identification of the flow needs of the listed fishes; legal protection of reservoir storage releases to and through the occupied habitat; indications that listed fishes populations or their habitats are improving; and water quality improvement are viewed as the most important elements of achieving sufficient progress under the Program.

The large number of gas and oil pipeline crossings of the San Juan River and its tributaries is suspected to add to contaminant problems in the San Juan River. Deposition of contaminants from construction of gas and oil pipelines may cause considerable cumulative impacts on water quality and fish and wildlife resources. Trenching, pipelaying, and backfilling activities during pipeline river crossings may resuspend PAH compounds. This could result in impacts to aquatic organisms, including those listed fishes under consideration in this draft biological opinion.

Other sources of contaminants also exist and add to the water quality problems. PAHs may reach aquatic environments, and accumulate in river bottom sediments, in domestic and industrial sewage effluent, in surface runoff, from contaminated groundwater, from deposition of airborne particulates, and particularly from spillage of petroleum and petroleum products into water bodies (R. Eisler 1987).
During 1990 and 1991, the Service collected bile samples for PAH analysis from several species of fish in the San Juan River and from migratory birds throughout the Farmington-Bloomfield area. Normal concentrations of naphthalene in fish bile should be less than 10,000 ng/g wet weight (parts per billion), phenanthrene less than 3,000 ng/g wet weight, and benzo(a)pyrene less than 100 ng/g wet weight (National Oceanic and Atmospheric Administration 1989). Bile samples from fish collected during the spring and summer, 1990, indicated that fish in the San Juan River and Navajo Reservoir were being exposed to high levels of naphthalene, phenanthrene, and benzo(a)pyrene. The highest concentrations of PAH metabolites in fish bile (naphthalene 490,000 ng/g wet weight, phenanthrene 120,000 ng/g wet weight, and benzo(a)pyrene 1,800 ng/g wet weight) were detected in an individual sample of bile from black bullheads collected in the San Juan River downstream from the confluence with the Animas River. These data strongly suggest that the San Juan River is heavily impacted by PAHs. Because of the results received from the 1990 spring and summer investigations, bile samples were again collected from several species of fish in the San Juan River during November 1990. Bile samples from flannelmouth suckers (Catostomas latipinnis) were analyzed individually for PAHs metabolites. Flannelmouth suckers were used as a surrogate species for the razorback sucker to determine the later species'

potential exposure. There was no significant increase in the concentration of naphthalene metabolites in flannelmouth sucker bile collected from below the Hammond Irrigation project (Station A) to the Mancos River (Station G). However there was a significant difference in the concentrations of phenanthrene and benzo(a)pyrene in sucker bile between stations. No correlation between specific river reach and PAH concentrations was noted.

The lower molecular weight PAH compounds, such as naphthalene, and phenanthrene, have significant acute toxicity to some organisms (Krahn et.al. 1984, 1986; Zitko 1975). Higher molecular weight PAHs such as benzo(a)pyrene have been found to cause mutations and cancer in aquatic and terrestrial organisms (Eisler 1987). An adequate body of information is lacking concerning PAH contamination in the San Juan River and the potential effects on aquatic resources of the river caused by the presence of the compounds. However the higher incidence of tumors and hyperplastic diseases in aquatic organisms from PAH contaminated environments raises concern regarding the potential effects of pipeline construction resuspending PAHs by disturbing the bottom sediments in the tributaries of the San Juan River.

Additional concerns include potential contamination from hydrostatic testing of the pipeline and introduction of contaminants from the operating pipeline in the event of a break in the pipeline. Volatile organic compounds and metal particles may be washed out of the pipeline and into rivers during hydrostatic testing. In addition, hazardous organic wastes are found in the pipelines themselves as a result of gas processing and transport (Eiceman 1986), and may enter the river system if a break in the pipeline occurs.

Conservation Recommendations

1. River bottom sediments at all pipeline crossings in New Mexico should be tested for PAH contamination. Testing protocols should be reviewed by the New Mexico Field Office prior to implementation. Results should be made available to the New Mexico Field Office for review and recommendations for further sampling of sediments or aquatic organisms (if any required) prior to construction of any river crossing.

2. Hydrostatic testing water should be tested for volatile organic compounds and metallic particles. Testing and treatment methods should be reviewed by the New Mexico Field Office prior to any return of testing water to the rivers.

3. TransColorado Pipeline Company should address how they will prevent contaminants from entering rivers in the event of a break in the line. Methods of controlling such a situation could include such actions as placing emergency shut-off valves on the pipeline at both sides of the river crossings.

Uinta Basin Hookless Cactus

The Uinta Basin hookless cactus, Sclerocactus glaucus (K. Schum.)L. Benson, is a small barrel shaped cactus 3.0-18.0 cm tall with small pink to purple

flowers up to 2.5 cm long. It also has relatively short spines, up to 3.6 cm long, which are hookless. It was listed as threatened on October 11, 1979 (44 FR58870). Because individuals with hooked spines are occasionally found, it has been sometimes treated as a form of the common "fish hook" cactus of the Colorado Plateau, Sclerocactus whipplei (S. parviflorus) , rather than a distinct species (Welsh 1984). However, the most rigorous statistical comparison of the two species, with multivariate analysis, demonstrates that the two are distinct species, with intermediate individuals in areas transitional between the ranges of the two species (Heil and Porter 1987).

The Uinta Basin hookless cactus has a bimodal distribution with one population in the Uinta Basin in Utah and the other in Colorado. The Colorado population has two sections, one near the town of DeBeque along the Colorado River, and the other along the Gunnison River beginning at Whitewater and extending upstream to about 20 miles east of Delta. The proposed project lies within both Colorado populations. The Uinta Basin hookless cactus generally occurs on river terrace deposits along the rivers or on fine textured sediments overlain by course fragments on mesa tops and slopes. They occasionally occur in fine-textured outwash plains in association with greasewood. Most of the occurrences of the cactus are in mixed desert shrub communities with shadscale, Gardner saltbrush, budsage, Harriman yucca, Mormon tea, broom snakeweed, and galleta grass, with some occurrences in the lower edge of the pinion-juniper woodland. The species elevational range is between 4500 and 5900 feet.

The total documented population within Colorado is 12,000 individuals, with 4,000 in the upper Colorado River population and 8,000 in the Gunnison River population. The documented Uinta Basin population is 10,000 individuals.

Endangered plant surveys of the preferred route were conducted by John Anderson, then with the Service, during the spring of 1991. Fifty-two individuals of the Uinta Basin hookless cactus in 5 separate locations were found within or adjacent to the construction ROW. Three of these occurrences would be bypassed by the proposed pipeline as a result of route modifications. The two remaining occurrences, totaling 20 individuals, remain within the construction ROW. The first occurrence, on a grassy alluvial bench adjacent to the Colorado River in the upper Colorado River population, at milepost 46.9, consists of 10 individuals in a greasewood, shadscale, budsage plant association (USFWS 1991). The second occurrence, in the Gunnison River population, consists of 10 individuals at milepost 85.7 in Mancos Shale adobes with basalt fragments on the surface and shadscale, galleta grass, and woody aster as associated plants (USFWS 1991). Both occurrences are in the midst of larger occurrences of Uinta Basin hookless cactus which have dispersed populations (USFWS 1991). The potential exists to narrow the ROW slightly in these areas and slightly reduce the number of cactus impacted. The 20 individuals that may be effected comprise 0.082% of the total documented population of the species, 0.16% of the documented Colorado population, 0.25% of the upper Colorado River population, and 0.125% of the Gunnison River population. Because of the very low numbers and small percentage of the population to be impacted, the pipeline does not constitute a jeopardy to the continued existence of the species. The project also would effect plants in

the middle of the species range, rather than more significant colonies at the edge of the range.

Conservation Recommendations

The Service recommends that the 20 individuals be transplanted to suitable habitat in the immediate area. A qualified botanist, approved by the Service, may be required to retain the plants until it is appropriate to transplant them into the identified habitat. Based on transplanting techniques developed by Steve Brack of Mesa Gardens in Belen, New Mexico, The following techniques should be used when removing the plants.

> If transplanted between April and September, the dirt should be removed from around the base of the plant and all small roots (less than 3 mm in diameter) cut away. The plants should be placed in filtered sunlight for three to four days to dry out before being replanted. The cactus should then be replanted in soil with similar characteristics to the soil in which they originally grew, in the immediate vicinity of the original location. The transplanted cactus do not need to be watered right away, but should be watered in two weeks if there has been no rainfall. If transplanted between October and March, the cactus must be kept in a greenhouse under specific conditions until transplanted.

An endangered species subpermit from the Fish and Wildlife Service is required for removing and transporting the Uinta Basin hookless cactus. The approved botanist selected for this work must have submitted Form 3-200 "Federal Fish and Wildlife License/Permit Application" and supplemental "Threatened Species " forms. The botanist must have an approved subpermit granted prior to removing any individuals of the Uinta Basin hookless cactus. Copies of the forms and their instructions will be provided to the BLM or their designated representative upon request.

INCIDENTAL TAKE

Section 9 of the Act, as amended, prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Under the terms of Section 7(b)(4) and Section 7(0)(2), taking that is incidental to and not intended as part of the agency action is not considered taking within the bounds of the Act provided that such taking is in compliance with the incidental take statement.

The Service has determined the incidental take associated with this project to be zero.

CONCLUSION

This draft biological opinion is based upon potential impacts associated with the construction of the proposed TransColorado Gas Transmission Pipeline. Project impacts as described in the draft biological assessment, were submitted by the Bureau of Land Management in May 1992. If new information is presented in the final biological assessment which may effect additional species, or alter the projected effects on the species considered in this draft biological opinion, the findings of the final biological opinion may differ from those presented here. The Service requests that the BLM/USFS incorporate the letter from TransColorado Gas Transmission Company as a condition of their approval documents. Also, the BLM/USFS should condition its approval documents to retain jurisdiction should Section 7 consultation need to be re-initiated.

Thank you for your cooperation in the formulation of this opinion and your interest in conserving endangered species. If the Service can be of further assistance, please contact Mr. Terry Ireland in our Grand Junction, Colorado, office at (303) 243-2778.

Sincerely,

for LeRoy W. Carlson
Colorado State Supervisor

Attachments to final B.O.: (Appendix A, Appendix B)

pc: CDOW, Grand Junction
COE, Sacramento
FWS/FWE, Grand Junction
FWS/FWE, Salt Lake City
FWS/FWE, Denver (Attn: Dale Hoffman)

REFERENCES

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APPENDIX F

TRANSCOLORADO GAS TRANSMISSION PROJECT
CULTURAL RESOURCES PROJECT DATA

APPENDIX F

SHPO AND ACHP CONCURRENCE

A cultural resource treatment plan is being prepared for cultural resources based on Class III inventory data and regionalized, project-specific research designs. A partial treatment plan covering approximately 72 percent of the final EIS agency preferred route (that portion of the route surveyed to date) has been submitted to the Colorado and New Mexico State Historic Preservation Officers (SHPOs) and the Advisory Council on Historic Preservation (ACHP). Both SHPOs and the ACHP agree with the philosophy in the treatment plan and request they be kept involved in the treatment and research design of the cultural resource sites. This includes involvement in the treatment and research design of any new cultural resource sites discovered as a result of remaining inventories along the agency preferred route. The two SHPO and ACHP letters are attached at the end of this appendix. The final research design and treatment plan will be submitted to the Colorado and New Mexico SHPOs, the ACHP, and the FERC for review and concurrence following the completion of the Class III inventories. The record of decision and subsequent BLM/USFS ROW grant will not be released until the SHPO concurrence is received on the treatment plan. Any additional mitigation or supplemental environmental analysis will be included in the BLM/USFS Record of Decision (ROD). Implementation of the treatment plan would not begin until the FERC issues a certificate of public convenience and necessity on private and the BLM issues the ROW grant on Federal land.

CRITERIA OF ELIGIBILITY

Cultural resource laws and regulations are concerned with "significant" sites, districts, buildings, structures, or objects. Criteria for significance are found in 36 CFR 60.4. These criteria require that a site, district, building, structure or object possess integrity of location, design, setting, materials, workmanship, feeling, and association, in addition to one or more qualities relating to association with important events or persons, embodiment of distinctive architectural, structural, or artistic values, or likelihood to yield important historic or prehistoric data. These criteria apply to sites, districts, etc., having local, regional, or national importance. Possession of physical integrity is a primary criterion for NRHP eligibility. Thus, a significant site, etc., is one that has been determined eligible for listing on the NRHP by the Keeper of the Register, or one that is eligible as decided by the State Historic Preservation Officer because it meets one or more of these criteria and possess integrity. Sites, etc., that have not been officially assessed for eligibility should also be treated as if they are eligible until assessment of their status is made.

Prehistoric sites that are *generally eligible* for NRHP inclusion include (1) intact, complex burial sites; (2) sites exhibiting stratigraphically superimposed occupation records; (3) PaleoIndian and other early man sites; (4) physically intact sites that are highly representative of a particular culture or period of occupation; and (5) unique sites that are physically intact. Prehistoric sites that are *generally not eligible* consist of (1) isolated artifacts and isolated features, such as hearths; (2) surface lithic or ground stone scatters or combinations thereof; and (3) sites that lack physical integrity, regardless of the other characteristics.

Historic sites that are *generally eligible* for the NRHP include (1) those exhibiting a high degree of physical/structural integrity and that are representative of a particular historic period or ethnic occupation; (2) unique sites that are physically intact; (3) intact sites that are associated with particular historically significant events or persons; and (4) vestiges of historic trails. *Generally not eligible* historic sites include

(1) isolated artifacts; (2) isolated occurrences of industrial, agricultural, or automotive equipment; (3) isolated mining prospect pits; (4) surficial artifact scatters, including trash dumps; and (5) homesteads that are not highly intact.

For purposes of significance evaluation, a third category of cultural property has recently been identified in response to the passage in 1978 of the American Indian Religious Freedom Act. This category consist of sites that possess religious or traditional significance to contemporary Native Americans. Their cultural, religious, and legal significance is largely a matter of interpretation by the tribes themselves or their legal representatives.

PROPOSED CULTURAL RESOURCE TREATMENT PLAN

Overall Philosophy

Using the Class III inventory information, a research design will be prepared for each cultural region along the route. The design may be different for each region depending on the significance and number of sites found. A cultural resource treatment plan will be prepared once the Class III inventory is completed and the data are incorporated into the research design. The overall philosophy will be to treat only those sites determined to be eligible for listing on the National Register of Historic Places (NRHP). Using this philosophy, all NRHP eligible sites will be avoided wherever possible by rerouting within the 200-foot wide inventoried corridor. For those NRHP eligible sites that cannot be avoided, the philosophy will be to excavate about 30 percent of the most important sites, test and monitor the remaining sites, and treat any features or properties discovered according to instruction from the monitoring archaeologist and landowner. Additional data recovery may be necessary if cultural features are discovered during the testing or construction.

Treatment of Excavated Items

Sites that are to be excavated will be flagged and excavated prior to beginning or during construction. Excavated artifacts and ancillary samples will be catalogued and analyzed, and artifacts will be deposited in an approved facility.

The State and Federal law provides field procedures for treatment of human remains. The investigators, after having secured an excavation permit, would determine the age and cultural affiliation of the remains, and would notify the respective county coroner if such remains are less than 100 years of age. After determining if the remains hold no forensic significance, the coroner would notify the state archaeologist if the remains are those of a Native American, or the Colorado State Anatomical Board, if they are other than Native American. If the remains are those of an individual more than 100 years of age, the anthropologist would forego notification of the coroner and notify the state archaeologist or the Colorado State Anatomical Board and the land managing agency.

Pursuant to the Native American Graves Protection and Repatriation Act and state laws, the linear descendants or culturally affiliated Native American groups will be identified for any items excavated from private, state, Federal, or Tribal lands. An inventory of the human remains and funerary objects in the possession or control of the museum or agency will be completed within 5 years of excavation. Within 6 months following completion of the inventory, the proper party (descendant or Native American group) will be notified and the items will be returned, if requested. Within three years following completion of the inventory, a summary of unassociated items, funerary, sacred objects, and cultural patrimony objects will be prepared. This summary will include the scope of the project, the kinds of objects and means and period of acquisition, and the known former provenance

and cultural affiliation, if known. Upon request, this information will be available to Native American groups, and items will be returned to affiliated groups upon request.

Treatment of Excavated and Unexcavated Eligible Sites

A testing and monitoring program will be conducted on the unexcavated sites with greatest potential for buried features. This would ensure buried features are not inadvertently disturbed. All discovered features will be excavated and placed into a meaningful site context.

A qualified archaeologist will be present during ground-disturbing activities through excavated and unexcavated sites and through non-site locations that have potential for buried sites. The archaeologist will monitor the NRHP-eligible sites that have had cultural components excavated and NRHP eligible sites that have not been excavated.

Upon discovery of cultural components, the archaeologist, in consultation with the landowner, will make an assessment of the components and make a decision regarding their disposition. A detailed monitoring plan will be developed and incorporated in the treatment plan. The decision could be to excavate the components or to record the information and leave the components in place.

Pursuant to the Native American Graves Protection and Repatriation Act and state laws, any items found on private, state, Federal or Tribal lands will be excavated and treated as explained in the Treatment of Excavated Items section of this plan.

Treatment of Unanticipated Cultural Resources

A unique set of mitigative actions must be taken in the event of accidental discovery of cultural resources following completion of Class III inventory and NRHP assessment. Previously unrecorded sites are most likely to be found as a result of surface disturbance and trenching operations. When sites are uncovered during these operations, the area would be marked, and procedures to avoid further site damage would be undertaken. Because the TransColorado Gas Transmission Project involves federal lands and is a federally licensed project, emergency discovery procedures would be activated under the Archaeological and Historic Preservation Act (AHPA) of 1974. TransColorado would immediately inform the Department of Interior's Department Consulting Archaeologist (DCA) of the discovery, who (usually through a representative) would inspect the site within 48 hours of notification and render an assessment of NRHP eligibility. The SHPO would also be notified at the same time, as would the USDA-Forest Service and USDI-Bureau of Land management if Forest Service or BLM lands were involved. If appropriate, mitigative measures would be specified. The DCA would ordinarily invite the SHPO to participate in assessment and mitigative decisions. TransColorado would comply with the DCA's decisions, and although construction activities need not be halted, all efforts would be taken to prevent further damage to the cultural resource. Pursuant to the Native American Graves Protection and Repatriation Act and state laws, any unanticipated items found (on Federal or Tribal lands) will be excavated and treated as explained in the Treatment of Excavated Items section of this plan.

Programmatic Agreement

To ensure that the BLM's responsibilities under Section 106 of the NHPA, and implementing regulations, are met, the BLM, ACHP, and the Colorado and New Mexico SHPOs signed a Programmatic Agreement (PA). The San Juan, Grand Mesa, Uncompahgre and Gunnison National Forests, and TransColorado were concurring parties. The Southern Ute Indian Tribe

chose not to sign the document. The BLM, as lead Federal agency and pursuant to the PA, is responsible for Section 106 compliance for all lands, both public and private, affected by the proposed project. This agreement includes guidelines for cultural resources identification and treatment and defines the procedures to be followed to ensure that the BLM fulfills its responsibilities under Section 106 of the NHPA. The execution and implementation of this PA evidences that the BLM has satisfied its Section 106 responsibilities for all individual actions of the project. The Programmatic Agreement 0follows.

RECEIVED
AUG 13 1990

PROGRAMMATIC AGREEMENT
AMONG
THE U.S.D.I. BUREAU OF LAND MANAGEMENT, COLORADO
THE U.S.D.A. FOREST SERVICE, SAN JUAN AND GRAND MESA,
UNCOMPAHGRE AND GUNNISON NATIONAL FORESTS
SOUTHERN UTE TRIBE
THE COLORADO AND NEW MEXICO STATE HISTORIC PRESERVATION OFFICERS
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE TRANSCOLORADO GAS TRANSMISSION PROJECT

WHEREAS, the Bureau of Land Management, Montrose District (BLM) proposes to administer, on behalf of the above agencies, the TransColorado Gas Transmission Project, as authorized by 43 CFR Part 2800, and

WHEREAS, the BLM, and its cooperating agencies, has determined that the TransColorado Gas Transmission Project may have an effect on properties included in or eligible for inclusion in the National Register of Historic Places (NRHP) and has consulted with the Advisory Council on Historic Preservation (the Council) and the Colorado and New Mexico Historic Preservation Officers (SHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act, as amended, (16 U.S.C. Section 470f) [and Section 110(f) of the same Act (16 U.S.C. 470 h-2(f)], and

Whereas, this Agreement covers planning, construction, operation and maintenance of the proposed TransColorado Gas Transmission Pipeline including, but not limited to power and communication transmission systems, compressor stations, staging areas, and access roads. The terms of this Agreement shall be completed prior to Notices to Proceed for Rights-of-Way.

Whereas, unless otherwise defined differently in this agreement all terms are used in accordance with 36 CFR 800.2.

Whereas, the TransColorado Gas Transmission Company (the Applicant), has been invited to participate in consultation and as a signatory to this Agreement,

NOW THEREFORE, the BLM, the Council and the SHPO agree that the proposed project (undertaking) shall be administered in accordance with the following stipulations to satisfy Section 106 responsibilities for all aspects of the project.

STIPULATIONS

In accordance with existing BLM and Forest Service guidelines for cultural resources (prehistoric and historic), and the Secretary of the Interior's Standards and Guidelines (48 FR 44716-44742) (the Secretary's Standards), the following measures will be carried out:

1. The BLM, in consultation with the cooperating agencies shall ensure that a Cultural Resource Overview (Class I) of the preferred route, and its alternatives, will be prepared by the applicant. The Overview will address the density, diversity, distribution, and significance of the cultural resources, including traditional Native American values, in accordance with measures outlined in Attachment A. The Applicant will also identify areas needing field inventory.

2. The BLM, SHPO, and cooperating agencies, shall evaluate the Overview, in accordance with 36 CFR Part 800, to determine the nature and extent of field inventory required. The failure of the SHPO to comment within 30 days of receipt of the request shall not preclude the BLM from directing the Applicant to implement the specified field inventory.

3. The BLM will assure that the Applicant completes an on the ground, intensive Inventory (Class III, 100% pedestrian) of approved project areas subject to potential ground disturbance that have not been previously inventoried, or areas where the BLM and SHPO determines the results of previous inventories to be inconclusive or inadequate.

4. BLM will submit the results of the inventory to the SHPO for determinations of eligibility pursuant to 36 CFR [redacted].4.

5. The Applicant shall submit a comprehensive Treatment Plan, based upon the results of the Class I and III inventory reports, that will address the effects of the proposed project on historic properties. The Plan shall identify all historic properties located within the area of potential effects, the nature of the effects to which each property will be subjected, and the treatment strategies proposed to minimize or mitigate the effects of the project. The BLM shall submit the Plan to the SHPO and Council for review. The SHPO and Council shall comment on the Plan within 30 days of receipt. If either party, SHPO or Council, fails to submit their comments within 30 days of receipt, the BLM shall implement the Plan. If the SHPO, or Council, objects to the plan or any part thereof, the BLM will consult with the objecting party to resolve the objection in accordance with stipulation 12.

6. The BLM shall ensure that all records and materials resulting from identification and data recovery efforts are curated in accordance with 36 CFR Part 79, provided that all materials to be returned to their owners will be maintained in accordance with 36 CFR Part 79 until their analysis is complete and they are returned.

7. All work undertaken to satisfy the terms of this Agreement shall meet the Secretary of the Interior's Standards & Guidelines for Archaeology & Historic Preservation (48 FR 44176-44739) and the Council's Treatment of Archaeological Properties Handbook, November 1980.

8. Should previously unidentified historic properties be discovered during construction, the BLM shall ensure that all work that may affect the property is halted until BLM has satisfied the requirements of 36 CFR Part 800.11. The Applicant shall be responsible for alerting the BLM to the discovery of previously unidentified properties and for ensuring that work crews are informed of the requirement to identify, report and protect any such finds.

9. The BLM shall ensure that any human remains encountered during the course of this project are treated in a respectful manner. Where Native American human remains are encountered on Federal Lands the BLM will consult with the signatories to this agreement and attempt to identify affiliated groups for determining treatment and disposition measures consistent with the Council's burial policy. Where Native American human remains are encountered on state or private lands the BLM will consult with the signatories and appropriate interested persons in accordance with state laws.

10. The BLM will coordinate all actions required under this agreement. The Montrose District will be the overall coordinator and Federal contact with the SHPOs. The Applicant may be called upon to facilitate coordination with Native American groups, SHPO, etc, or distribute information or reports to reviewers.

11. The Council and the SHPO may monitor activities carried out pursuant to this Agreement, and the Council will review such activities if so requested. The BLM will cooperate with the Council and the SHPO in carrying out their monitoring and review responsibilities.

12. Should any party of this agreement object within 30 days to any actions pursuant to this agreement, the BLM shall consult with the objecting party to resolve the objection. If the BLM determines that the objection cannot be resolved the BLM shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

1. provide the BLM with recommendations, which the BLM will take into account in reaching a final decision regarding the dispute; or

2. notify the BLM that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the BLM in accordance with 36 CFR 800.6(c)(2) with reference to the subject of dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the BLM's responsibility to carry out all actions under this agreement that are not the subject of the dispute will remain unchanged.

13. Any party to this Agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR Part 800.13 to consider such amendment.

14. Any party to this Agreement may terminate it by providing thirty (30) days written notice, in writing, to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of a termination, the BLM will comply with 36 CFR Part 800.4 through 800.6 with regard to individual actions covered by this Agreement.

15. In the event that BLM does not carry out the terms of this Agreement, the BLM will comply with 36 CFR Part 800.4 through 800.6 with regard to individual actions covered by this Agreement.

Execution and implementation of this Agreement evidences that the BLM has satisfied its Section 106 responsibilities for all individual actions of the project.

BUREAU OF LAND MANAGEMENT
BY: Allan L. Kesterke Date: 7-12-90
Title: Montrose District Manager

ADVISORY COUNCIL ON HISTORIC PRESERVATION
BY: John W. Fowler Date: 9/19/90
Title: Exp. Executive Director

COLORADO STATE HISTORIC PRESERVATION OFFICER
BY: [signature] Date: July 18, 1990
Title: Deputy

NEW MEXICO STATE HISTORIC PRESERVATION OFFICER
BY: [signature] Date: August 13 1990
Title:

CONCURRANCE:

SAN JUAN NATIONAL FOREST
BY: William T Seaton Date: 10/4/90
Title:

GRAND MESA, UNCOMPAHGRE AND GUNNISON NATIONAL FORESTS
BY: [signature] Date: 10-2-90
Title: Forest Supervisor

SOUTHERN UTE TRIBE
BY: _____ Date: _____
Title:

TRANS COLORADO TRANSMISSION COMPANY
Concur:
BY: [signature] Date: 10-24-90
Title: Project Mgr

CKB

ATTACHMENT A

I. Standards for Overviews.

A. General Standards.

1. The overview shall consist of a comprehensive narrative of the prehistory and history of the study area based on a compilation and analysis of relevant existing information from the appropriate discipline. In addition to cultural resource disciplines, such as archaeology, ethnography, and history, it shall consider environmental information pertinent to human use and occupation of the study area.

2. The overview shall take into account regional overviews (Class I inventories), State plans and contexts (including Colorado's RP-3 contexts), and Federal, State or local land use plans.

3. The overview shall define types of known and expected cultural properties in the study area and shall describe the bases for these definitions.

4. To the extent the data will allow, the overview shall describe the nature, distribution and density of each property type in the study area.

5. The overview shall evaluate the quality of, and assess the limitations of, existing archaeological, historical, ethnographic and architectural data and data sources. This analysis should identify stated or implicit biases and assumptions in research orientations, observations, and discriptions.

6. Native American consultation requirements shall be developed as an aspect of the overview document as specified by the BLM in consultation with the respective SHPOs.

7. The overview shall provide, in tabular form and on maps, those areas which have received sufficient inventory to determine whether the cultural resources qualify for inclusion on the National Register of Historic Places.

B. Property Types with Scientific Values.

1. The overview shall identify previous research questions and evaluate their current relevance. It shall also define new, potential research questions which may be addressed in the study areas.

2. Research priorities shall be set forth in the overview and must be relevant to the specific locations to be investigated.

3. The overview shall identify gaps in the existing data which are important to answering the stated research questions.

4. The overview shall identify property types likely to be found and shall describe the kinds of data they may contain that are relevant to the stated research questions.

5. The overview shall assess geographic areas likely to contain buried cultural resources.

C. Property Types with Other than Scientific Values

The overview shall attempt to identify Native American tribes or groups that may have an historically demonstrable traditional or religious interest in a study area and the places or resources of interest to such groups.

II. Standards for Inventory.

A. General Standards.

1. The BLM will assure that the Applicant completes a 100% pedestrian, on the ground, intensive inventory of the approved project areas subject to potential ground disturbance that have not been previously inventoried, or areas where the BLM and SHPO determine that the results of previous inventories are inconclusive or inadequate. The inventory shall include a 200 foot corridor centered on the construction right-of-way. The Applicant may choose to inventory a wider corridor in some or all areas to enhance the potential for avoidance of cultural properties. The survey interval shall be no greater than 15 meters between transects. The Right-of-Way centerline must be flagged prior to inventory. All facilities requiring Federal authorization and/or all land surfaces that will be disturbed by construction or used in construction shall be inventoried to the same standard as above, including a 100 foot buffer zone.

2. Where cultural resources are encountered during the survey, the inventory area shall be expanded as necessary to fully delineate the boundaries and evaluate the site. All sites will be evaluated in accordance with the criteria for determining National Register eligibility (36 CFR Part 60.4).

3. All cultural resources shall be recorded on site forms acceptable to each SHPO.

4. All previously recorded sites that occur within the construction right-of-way or other areas that will be impacted shall be re-evaluated and the site forms updated as necessary. Sites previously determined ineligible for nomination to the NRHP in formal consultation with the appropriate SHPO, shall not be rechecked.

B. Standards for Inventory Reports.

1. The Applicant shall submit a Class III inventory, interim report. The time frames are to be stipulated in the contract. This report shall be descriptive in nature providing locational and NRHP significance information. A narrative shall also display and discuss the quality and utility of the data of areas inventoried and the relationships of sites to the project area. The report shall also include detailed maps showing areas inventoried and relationships of sites to the project area. Ten (10) copies are to be submitted to BLM for distribution.

2. The final Class III report will include and address the draft report comments. The report shall meet the Secretary of Interior's (48 FR 44728-44737), BLM and/or SHPO standards. Ten (10) copies will be submitted for BLM distribution. One (1) copy will be camera ready, unbound, and single spaced with original black and white photographs.

III. Guidelines for Treatment.

A. General.

1. The treatment plans will conform to the Secretary of Interior's, Standards & Guidelines for Archaeology & Historic Preservation (48 FR 44728-44738). Treatment recommendations should be cost-effective and realistic, and commensurate with the nature and significance of the involved cultural resources. Recommendations should consider project time schedules and should consider a range of alternative treatments including protection measures and data recovery. Recommendations shall include measures for site monitoring in areas of suspected subsurface values.

If human remains are encountered they will be treated in a respectful manner. Human remains encountered on Federal Lands will be treated in accordance with affiliated tribal desires. Human remains found on state or private lands will be appropriately treated in accordance with state laws.

B. Standards for the Treatment Plan.

1. Data Recovery Plan Standards. The data recovery plan shall conform to the Secretary's Standards and should provide the context and justification for and a detailed description of the proposed data recovery work.

2. Protection Measures.

a. Recommendations for physical or administrative protection measures must consider the nature and source of deterioration of the properties.

b. If physical or administrative protection measures are recommended, proposals must include a feasibility study justification and project specifications.

C. Standards for Data Recovery Reports.

1. The results of data recovery activities shall be documented in a report meeting acceptable Secretary of Interior's Standards.

2. Data recovery reports shall include at a minimum:

a. the property, properties, or portions of properties where data recovery is to be carried out;

b. any property, properties, or portions of properties that will be destroyed, altered, or transferred without data recovery;

c. the research questions to be addressed through the data recovery, with an explanation of their relevance and importance;

d. the methods to be used, with an explanation of their relevance to the research questions;

e. the methods to be used in analysis, data management, and dissemination of data, including a schedule;

f. the proposed disposition of recovered materials and records including the disposition of Native American sacred items, human remains and grave goods;

g. proposed methods for involving the interested public in data recovery;

h. proposed methods for disseminating results of the work to the interested public;

i. proposed methods by which relevant Native American groups and local governments will be kept informed of the work and afforded an opportunity to participate;

j. a proposed schedule for the submission of progress reports to the BLM na cooperating agencies.

D. Draft Report.

1. The Applicant is to submit the draft data recovery report to the BLM following completion of all treatment.

2. The BLM will provide copies to the SHPO's, Council, and cooperating agencies for review and comment.

E. Final Report.

1. The Applicant shall submit a final report to BLM for distribution, including all appendices discussed above.

IV. Standards for Permits.

A. General Standards.

1. Each cultural resource contractor performing work on public, tribal, and state lands must have appropriate cultural resources permits.

COLORADO HISTORICAL SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

May 20, 1992

Richard Fike
Archaeologist
Bureau of Land Management
2465 S. Townsend
Montrose, Colorado 81401

Re: Transcolorado Pipeline Project Research Design

Dear Mr. Fike:

This office has reviewed the "Research Design for the Cultural Resource Mitigation Phase of the Transcolorado Pipeline Project Western Colorado and Northwestern New Mexico" prepared by Alpine Archaeological Consultants.

We find the document to be very thorough and the grasp of current literature to be commended.

Based on our meeting of May 11, 1992, it is our understanding that all National Register eligible sites will be included in the treatment plan and that we will be included in the decision making process concerning which eligible sites will be tested/excavated and which will be monitored. One of the criteria for ranking that we do disagree with is the use of cultural periods as a factor. We feel that equal weight should be given to all cultures whether they are Paleo or Protohistoric.

The following comments need to be considered in revising this research design for use in the treatment plan:

1. p. 31, 32 & 35 - Black's statements on Plano vs. Archaic occupations of the West Slope seem to be misrepresented.

2. p. 38 - The use of the term "San Rafael side notched" is outdated; Rick Holmer who coined the term admitted in print that this is the "Mallory" type (Holmer, 1986).

3. p. 56, 65 - In general, the research questions are well developed, but there is some confusion between testing hypotheses and rejecting null hypotheses, and a few research domains lack any testable hypotheses (e.g. social organization and paleoenvironment).

4. p. 62 - In Hypothesis 19, pinyon pine was recently dated to ca. 7400 BP in Danger Cave (Madsen, 1988, Great Basin Conference Paper).

5. p. 94 - Hypothesis 16 should be reworded, as paddle and anvil can be compared with scraping, but coiling should be compared with modeling. There seems to be some confusion between construction and finishing techniques.

6. p. 108 - Hypothesis 2, the presence of a structure does not automatically mean a winter habitation.

7. p. 111 - Many sites evaluated as eligible have not been adequately tested. Once these sites have been tested, the total cost of mitigation for buried sites should drop.

8. p. 112, 114 & 115 - The ranking procedure seems premature until sites have been tested.

At our May 11 meeting, we also developed new consensus determinations of eligibility for several sites from the historic era. We anticipate receiving correspondence from the Bureau confirming this.

We look forward to receiving additional site documentation when the survey has been completed and to reviewing the treatment plan. The Bureau is to be commended for developing a Programmatic Agreement for this project, and the consultants acknowledged for providing quality documentation on the sites recorded in the surface inventory accomplished to date.

If we may be of further assistance please contact Susan Collins or Jim Green at 866-3385.

Sincerely,

Susan M. Collins

James E. Hartmann
State Historic Preservation Officer

JEH/WJG

BRUCE KING
GOVERNOR

STATE OF NEW MEXICO
OFFICE OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION

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THOMAS W. MERLAN
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CULTURAL AFFAIRS OFFICER

B.L.M.

April 6, 1992

Richard Fike
Bureau of Land Management
Montrose District Office
2465 South Townsend
Montrose, Colorado 81401

Dear Rich:

I have completed my review of the Transcolorado pipeline survey report, and I will give you my general comments and my recommendations concerning eligibility and effect for the private land sites in this letter.

I would like to delay our discussion of eligibility and effect for BLM sites until I can talk this over with the Farmington Resource Area, however. They prefer that we reach agreement on these issues for sites under their jurisdiction prior to any overall finding of eligibility and effect by the lead agency. Jim Copeland tells me that he will be ready to discuss this with me by the end of this week.

My basic comment on this report is that it is an excellent job, very well written and very clearly organized. The folks at Alpine are the only archaeologists I know who still use the hypothetico-deductive method of organizing their research and do it right! There are a number of folks out there still using this method and doing it badly, but Alpine does it very well.

My main overall concern is that although they have at least attempted to identify historic properties of tradition value to Navajo people, there was no identification of traditional cultural properties of concern to the Utes. I realize that this project started before we began emphasizing identification of traditional cultural properties as an integral part of the Section 106 process and that we cannot hold them to the same identification standards that we would apply to a new project beginning now. But it does concern me that apparently no consultation at all was done with the Utes. I don't know how these things work in western Colorado, but if this were a project in western New Mexico, I would expect trouble with the tribes.

My second overall comment is that I strongly support their proposal to do intensive data recovery at a sample of the sites to be affected directly or indirectly by this pipeline rather than digging little strips through each site. I think that the quality of data recovered from full-site excavations is so much higher than data from right-of-way only excavations that any loss of information at the sites not selected for data recovery is more than offset.

In addition, we have been concerned here in New Mexico for some time about the fact that the Section 106 undertaking for these pipelines is the granting of the right-of-way, while what we end up mitigating is the effects of construction. Once the right-of-way is granted, many things potentially damaging to cultural resources go on for the life of the grant with no further consultation. We hope that by retrieving higher quality data from the excavation of whole sites or at least large portions of sites we will mitigate some of these long-term, unforeseeable effects.

For the private land sites in New Mexico, I concur with the recommendation that the following sites should be considered eligible to the National Register of Historic Places under 36 CFR 60.4(d):

LA27615	LA37613	LA37614
LA79998	LA86088	LA86091
LA86092	LA86093	LA86094
LA86341		

I also concur that the following sites should be considered ineligible to the National Register:

LA39941	LA54280	LA76428
LA86338	LA86842	

I do not feel that there is sufficient information to permit a determination of eligibility for LA86085; additional testing will be needed to determine the eligibility for this site.

Of the eligible sites, it appears that the following will not be affected by the undertaking, although monitoring of construction and/or protective fencing or flagging may be needed at some sites:

LA37613	LA37614	LA86088
LA86341		

The following eligible sites will be adversely effected by the undertaking and should be included in the treatment plan:

LA27615	LA79998	- LA86091
LA86093	LA86094	

It is not clear whether there will be an effect on LA86092 or not. Some testing in the right-of-way will be needed to make this determination.

If you have any questions about these comments, please contact me. I will be in touch about the Farmington BLM sites as soon as I hear from Copeland.

Sincerely,

Lynne Sebastian
Deputy State Historic Preservation Officer

ls: log 35036

Advisory
Council On
Historic
Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

May 21, 1992

Mr. Rich Fike
District Archaeologist
Montrose District
Bureau of Land Management
2465 S. Townsend
Montrose, CO 81401

REF: Research Design for the Cultural Resource Mitigation Phase of the Transcolorado Pipeline Project, Western Colorado and Northwestern New Mexico

Dear Mr. Fike:

On April 23, 1992, we received the referenced document (Research Design) for our review and comments. Subsequently, on May 11, 1992, Alan Stanfill of my staff met with you, members of the State Historic Preservation Officer's staff, representatives of the archaeological consultants and a representative of the applicant to discuss the document.

The meeting was valuable to us for understanding the steps taken that led to the development of the Research Design. Several issues were discussed, including the remaining inventory to be completed, completion of site evaluations, and the content and intent of the Research Design. Based on that meeting, we understand that the Research Design is intended as an element of the Treatment Plan required pursuant to Stipulation 5 of the Programmatic Agreement executed September 19, 1990, for the Transcolorado Gas Transmission Project.

In that context, although changes to the Research Design are anticipated to accommodate project development and changing conditions, we support the general direction and intent of the Research Design. The proposal to target a sample of eligible properties for intensive data recovery designed to address the data requirements of the research design is a sound strategy. Also, the intent to monitor all eligible properties during construction is appropriate. The key to the success of this strategy will be the responsiveness of the selected sample to the requirements of the Research Design. We urge you to ensure that the SHPO remains intimately involved in the decisions that relate to sample selection, and in the development of other elements of the Treatment Plan.

Thank you for keeping us informed. If we can be of further assistance, please contact Alan Stanfill at (303) 231-5320 or FTS 554-5320.

Sincerely,

Claudia Nissley
Director, Western Office
of Project Review

APPENDIX G

TRANSCOLORADO GAS TRANSMISSION PROJECT
VISUAL RESOURCES

APPENDIX G

INTRODUCTION

This appendix explains and compares the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) visual resource management classification systems. It also lists the areas with potential for high visual impacts and explains the methodology used in determining impacts.

BLM AND USFS VRM CLASSIFICATION SYSTEMS

A significant portion of the lands potentially affected by the proposed project are managed by the BLM and USFS. Both agencies have established programs for the inventory, classification and management of lands for visual resource values. Although somewhat different in procedural application, the basic concepts and objectives of these two programs are virtually identical. In each system, the inventory results provide the basis to identify visual resource management objectives which prescribe acceptable levels of visual modification appropriate to the landscape and viewer sensitivities which occur there. Under the BLM system, these are identified as visual resource management (VRM) classes; while under the Forest Service system, they are identified as visual quality objectives (VQO). Comparable classifications of the two systems are shown below.

BLM VRM Classes

Class I Objectives:

The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity.

Class II Objective:

The objective of this class is to retain the existing character of the landscape. Management activities may be seen, but should not attract the attention of the casual observer.

Class III Objective:

The objective of this class is to partially retain the existing character of the landscape. Management activities may attract attention but should not dominate the view of the casual observer.

Forest Service Visual Quality Objectives

Preservation:

This visual quality objective allows ecological changes only. Management activities, except for very low visual impact recreational facilities, are prohibited.

Retention (R):

This visual quality objective provides for management activities which are not *visually evident*.

Partial Retention (PR):

Management activities remain *visually subordinate* to the characteristic landscape when managed according to the partial retention visual quality objective.

APPENDIX G

Class IV Objective:

The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

These management class and VQO designations are the baseline standards against which proposed landscape modifications are judged and impact levels established. In order to have a common basis to evaluate and compare all alternatives for the Trans Colorado Pipeline project, it was necessary to establish comparable classifications for all lands potentially affected by the proposed project, including private and Indian lands. This was accomplished using the same inventory considerations used by the BLM and Forest Service systems. These include an inventory of the landscape character and quality, the sensitivity of viewers and the distance relationships of the viewer and the landscape in view. Because most of the private and Indian lands have a character more closely in line with that of BLM lands on the West Slope, the BLM criteria were used more extensively than the Forest Service criteria in establishing these final management classifications for private and Indian lands.

It should be noted that although BLM and Forest Service classifications were assigned to private and Indian lands as a comparative baseline indication of visual values, it is recognized that these classifications have no management implications here as they do on their respective agency lands.

Modification (M):

Under modification visual quality objective management activities may visually dominate the original characteristic landscape. However, activities of vegetation and land form alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that visual characteristics are those of natural occurrences within the surrounding area of character type. Additional parts of these activities such as structures, roads, etc., must remain visually subordinate to the proposed composition.

IMPACT ANALYSIS

Process Overview

Figure G-1 illustrates the basic steps involved in the impact analysis process. This process was designed to incorporate the essence of the BLM and Forest Service impact analysis procedures into a single comprehensive approach. As this figure illustrates, visual contrast levels are compared against the visual management objectives for an area (established through the baseline inventory) to determine the level of visual impact.

Visual contrast is an indication of the level of visible change in the landscape brought about by construction and operation of a project. Three variables are considered in determining visual contrast levels: the project description, the inherent character and sensitivity of the landscape to change (physical contrast), and the degree to which this change is seen by viewers at sensitive viewpoints (visibility). For purposes of this study, all residential, recreation and roadway viewpoints were considered sensitive viewing locations.

This process, therefore, incorporates a project-specific visual absorption capability (VAC) analysis (Forest Service procedure) and a visual contrast rating analysis (BLM impact process). In

order to assure that the impact analysis of some 730 miles of alternative routes with highly varied landscape and viewing conditions was both systematic and consistent in its application, a series of detailed criteria were established for classifying landform, vegetation and structure conditions. These criteria included conditions of landform complexity, slope, prominence and color, as well as vegetative type, height, density, complexity and recoverability. These criteria were applied to all alternative routes based on extensive field analysis. In addition, adjacent existing modifications were inventoried and classified according to the Forest Service existing visual conditions (EVC) criteria. Similarly, detailed visibility criteria, such as distance, duration, orientation, screening, position, etc., were developed and inventoried in the field. In all, 33 man-days were spent in the field collecting and carefully documenting these landscape viewing conditions. This documentation included special written field forms, map notes and over 1,200 carefully recorded photographs.

Using a matrix approach to assure consistency of application, the landscape conditions data (which identified the expected levels of on-site physical disturbance) were compared against the visibility conditions along the alternative routes (as shown in Figure G-1) to determine the existing levels of visible change or visual contrast. Similarly, a matrix approach was used as the basis to compare these visual contrast levels to the established visual management objectives to consistently determine impact levels.

Impact levels were judged to be high where the level of visual contrast was determined to exceed the management objectives for an area. Impacts were judged to be moderate where the level of visual contrast would be fully at the limits of the management objectives, and low where the expected contrast would be clearly within the limits of the management objectives.

Two additional steps are identified as part of the impact assessment process shown on Figure G-1. The first, an optional step, involves the preparation of selected visual simulations to accompany the technical analysis as a means of accurately conveying to the general public the extent of expected visual modifications at key sensitive sites. The final task is the development of mitigation measures for reducing levels of unacceptable visual contrast. Because of the extensive body of site-specific data gathered for this analysis, it is possible to identify the specific conditions contributing most to the impact at any given location. With this knowledge, it is possible to develop mitigation measures which are focused and most effective in reducing visual contrast and, therefore, visual impacts.

In order of the general level of effectiveness at reducing visual contrast, the following broad concepts should be considered in this order:

1. Prevent or reduce visible disturbance through careful siting, variation in standard construction practices, or taking advantage of screening.

2. Repeat the form, line, color and texture of nearby, naturally occurring elements in the landscape in facility design and implementation techniques.

Successful revegetation, using indigenous species, is a measure which should be utilized throughout the study area and will not be mentioned under the specific impact/mitigation discussions to follow.

Areas of high visual impact will, by definition, require substantive mitigation to reduce visual contrast to acceptable levels. Because of the harsh climatic and landscape conditions present within the study area, it will not always be possible to find feasible, cost-effective measures that will reduce impacts to acceptable levels.

Areas of moderate impact are an indication that extra sensitivity is required to keep disturbance to a minimum, but these are areas where few special measures would be needed to keep visual impacts at an acceptable level. Areas of low visual impact indicate areas wherein standard, good practice techniques of construction are acceptable.

For the visual resource analysis, a general period of 2 to 3 years following construction was used as the basis for the impact ratings. Field analysis conducted throughout the study area indicated that visual improvement beyond this period was minimal for most areas. As a result, the impact levels described herein represent both short- (less than 5 years) and long-term (more than 5 years) impacts.

Impact Analysis Results

Table G-1 lists the areas determined to have a potential for high visual impacts. It also lists environmental protection measures that will be applied to reduce impacts and the residual impact that would occur following application of the measures.

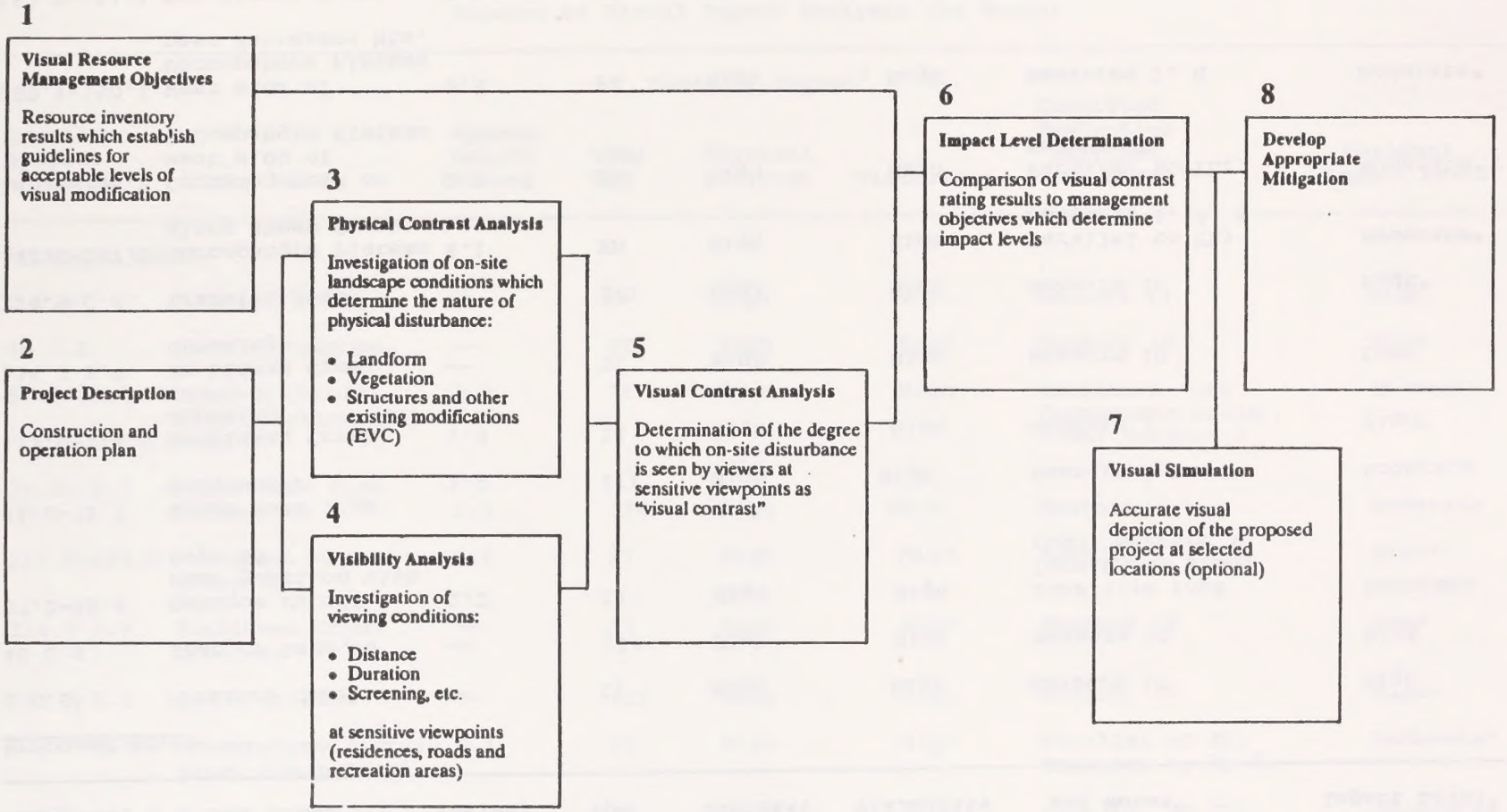
1
Visual Resource Management Objectives
Resource inventory results which establish guidelines for acceptable levels of visual modification
2
Project Description
Construction and operation plan
3
Physical Contrast Analysis
Investigation of on-site landscape conditions which determine the nature of physical disturbance:
• Landform
• Vegetation
• Structures and other existing modifications (EVC)
4
Visibility Analysis
Investigation of viewing conditions:
• Distance
• Duration
• Screening, etc.
at sensitive viewpoints (residences, roads and recreation areas)
5
Visual Contrast Analysis
Determination of the degree to which on-site disturbance is seen by viewers at sensitive viewpoints as "visual contrast"
6
Impact Level Determination
Comparison of visual contrast rating results to management objectives which determine impact levels
7
Visual Simulation
Accurate visual depiction of the proposed project at selected locations (optional)
8
Develop Appropriate Mitigation

Figure G-1. TransColorado Gas Transmission Project Visual Impact Analysis Process

ENSR Consulting and Engineering

Table G-1

Summary of Visual Impact Analysis (by Route)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
Proposed Route							
0 C.S[4]	Piceance Creek	--	II	High	High	Measure 10	High
48 C.S.	East of DeBeque	--	III	High	High	Measure 10	High
57.2-58.4	DeBeque Cutoff near junction with Hwy. 65	1.2	II	High	High	Sensitive rock formations along road; Measure 3	Moderate
74.0-75.7	Grand Mesa from Whitewater	1.7	III	High	High	Measure 2,7	Moderate
113.0-114.0	Roubideau Creek crossing	1.0	II	High	High	Measure 1	High*
114.2 B.V.	Roubideau Creek crossing	--	II	High	High	Measure 10	Low*
124.5 C.S.	Transfer Road	--	III	High	High	Measure 10	High*
141.0-147.1	Uncompahgre Plateau along Sheep Creek	6.1	PR	High	High	Parallel to TL; Measures 1, 3, 6	Moderate*
148.1-148.9	Crossing road on west side of Uncompahgre Plateau	0.8	PR	High	High	Parallel to TL; Measure 1, 3	Moderate*
150.1-150.4	West side of Uncompahgre Plateau near Patterson Mtn.	0.3	PR	High	High	Measures 1, 6	Moderate*
153.0-154.4	San Miguel River crossing (intermittent)	0.6	II	High	High	Measure 1, 3	High*

Table G-1

Summary of Visual Impact Analysis (by Route)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
Proposed Route							
0 C.S[4]	Piceance Creek	--	II	High	High	Measure 10	High
48 C.S.	East of DeBeque	--	III	High	High	Measure 10	High
57.2-58.4	DeBeque Cutoff near junction with Hwy. 65	1.2	II	High	High	Sensitive rock formations along road; Measure 3	Moderate
74.0-75.7	Grand Mesa from Whitewater	1.7	III	High	High	Measure 2.7	Moderate
113.0-114.0	Roubideau Creek crossing	1.0	II	High	High	Measure 1	High*
114.2 B.V.	Roubideau Creek crossing	--	II	High	High	Measure 10	Low*
124.5 C.S.	Transfer Road	--	III	High	High	Measure 10	High*
141.0-147.1	Uncompahgre Plateau along Sheep Creek	6.1	PR	High	High	Parallel to TL; Measures 1, 3, 6	Moderate*
148.1-148.9	Crossing road on west side of Uncompahgre Plateau	0.8	PR	High	High	Parallel to TL; Measure 1, 3	Moderate*
150.1-150.4	West side of Uncompahgre Plateau near Patterson Mtn.	0.3	PR	High	High	Measures 1, 6	Moderate*
153.0-154.4	San Miguel River crossing (intermittent)	0.6	II	High	High	Measure 1, 3	High*

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
184.5-189.4	Upper end of Disappointment Valley along Disappointment Creek	4.9	III	High	High	Parallel to road; Measures 1, 3	Moderate*
207.4-210.5	Crossing road parallel to Beaver Creek	3.1	PR	High/ Medium	High	Parallel to road; Measures 1, 3	Moderate*
213.4-213.6	Crossing head of Rocky Draw	0.2	R	High	Medium	Parallel to TL; Measures 1, 3	Moderate*
213.6-214.0	Above head of Rocky Draw	0.4	R	High	Medium	Parallel to two TL's; Measures 1, 3	Moderate*
215.2-216.2	Above Beaver Creek	1.0	M	High	High	Parallel to two TL's; Measures 1, 3	Moderate*
219.8-220.4	Crossing Bean Canyon	0.6	R	High	High	Parallel to two TL's; Measures 1, 3	Moderate*
221.3-221.7	Crossing Little Bean Canyon	0.4	R	High	High	Parallel to two TL's; Measures 1, 3	Moderate*
223 C.S.	Near FS Road 527	--	R	High	Low	Measure 10	Moderate
225.2-225.4	Crossing Dolores River (north side)	0.2	R	High	Medium	Measure 1	High
230.0-230.2	Crossing Dolores River (south side)	0.2	R	High	Medium	Measures 1, 6	High
234.5-236.1	Millwood	1.6	PR	High	High	Parallel to minor road; Measure 1	High*

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
239.1-239.4	West of West Mancos River	0.3	R	High	Medium	Measures 1, 9	Low*
239.8-240.5	West of West Mancos River, parallel to road	0.7	R	High	High	Measures 1, 3	High*
240.7-241.1	East of West Mancos River	0.4	R	High	Medium	Measure 1	High
243.2-243.4	Crossing F.S. Road 556	0.2	PR	High	High	Measures 1, 5, 6	Moderate*
245.1-245.6	Crossing F.S. Road 325	0.5	PR	High	High	Measures 1, 5, 6	Moderate*
248.3-250.9	West edge of Thompson Park	2.6	II	High	High	Measures 1, 6	Moderate*
269.7-270.6	Generally parallel to Hwy. 140 and La Plata River, south of Redmesa	0.9	III	High	High	Measure 1	High
276.2-276.6	East of Hwy. 170 and north of La Plata	0.4	III	High	High	Measure 1	High*
Grand Valley Variation							
0.0-1.0	Roan Cliffs	1.0	II	High	High	Crossing very high, very steep slope; Measure 9	High
1 M.S.	Roan Cliffs	--	II	Moderate	High	Measure 10	High*

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
3.0-7.0	Valley of Kimball Creek	4.0	II	High	High	Closely follows road; Measures 1, 3	Moderate
22.2-24.0	Steep basin above Deer Creek River to Big Salt Wash	1.8	III	High	High	Upper part very steep; Measures 1, 2	Moderate*
27.0-35.0	Big Salt Wash	8.0	III	High	High	Parallels road; Measures 1, 3	Moderate*
48 C.S.	East of DeBeque	--	III	High	High	Measure 10	High
Draft EIS Agency Preferred Route in Norwood Area							
11.0-17.0	Along Miramonte Road, south of Norwood	6.0	III	High	High	Parallel to road; Measures 1, 3	Moderate
19.1-20.3	Along Miramonte Road	1.2	III/PR	High	High	Parallel to road; Measures 1, 3	Moderate
Final EIS Agency Preferred Route							
0 C.S[4]	Piceance Creek	--	II	High	High	Measure 10	High
48 C.S.	East of DeBeque	--	III	High	High	Measure 10	High
57.2-58.4	DeBeque Cutoff near junction with Hwy. 65	1.2	II	High	High	Sensitive rock formations along road; Measure 3	Moderate
74.0-75.7	Grand Mesa from Whitewater	1.7	III	High	High	Measures 2, 7	Moderate

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
113.0-114.0	Roubideau Creek crossing	1.0	II	High	High	Measure 1	High*
114.2 B.V.	Roubideau Creek crossing	--	II	High	High	Measure 10	Low*
124.5 C.S.	Transfer Road	--	III	High	High	Measure 10	High*
141.0-147.1	Uncompahgre Plateau along Sheep Creek	6.1	PR	High	High	Parallel to TL; Measures 1, 3, 6	Moderate*
148.1-148.9	Crossing road on west side of Uncompahgre Plateau	0.8	PR	High	High	Parallel to TL; Measure 1, 3	Moderate*
150.1-150.4	West side of Uncompahgre Plateau near Patterson Mtn.	0.3	PR	High	High	Measures 1, 6	Moderate*
153.0-154.4	San Miguel River crossing (intermittent)	0.6	II	High	High	Measures 1, 3	High*
181.0-182.6	Norwood-Dolores Road	1.6	III	High	High	Measures 1, 3, 5, 7	High
185.7-187.3	Belmear Mountain	1.6	III	High	High	Measure 1	High
201.0-202.2	Southwest of Beaver Mountain	1.2	R	Medium	High	Crosses road at acute angle; Measures 1, 3, 5, 7	Moderate *
203.5 C.S.	Near Beaver Creek	--	R	High	High	Measure 10	High
205.9-206.1	Crossing head of Rocky Draw	0.4	R	High	Medium	Parallel to two TLs; Measures 1, 3	Moderate*

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
210.2-211.0	Crossing Dolores River & Hwy. 145	0.8	II/R	High	High	Measures 1, 4, 8,	High*
213.6-214.4	Crossing F.S. Road 558 on Haycamp Mesa (east side)	0.8	PR	High	High	Parallel to TL; Measures 1, 3	Moderate*
215.6-216.5	Crossing F.S. Road 557 on Haycamp Mesa	0.9	PR	High	High	Parallel to TL; Measures 1, 3	Moderate*
224.4-224.7	Crossing F.S. Road 565 between Chicken Creek and West Mancos River	0.3	R	High	High	Near TL ROW; Measures 1, 4, 5, 6, 7	Moderate*
225.4-225.8	East of West Mancos River	0.4	R	High	Medium	Measure 1	High
227.8-228.0	Crossing F.S. Road 556	0.2	PR	High	High	Measures 1, 5, 6	Moderate*
229.7-230.2	Crossing F.S. Road 325	0.5	PR	High	High	Measures 1, 5, 6	Moderate*
232.9-235.5	West edge of Thompson Park	2.6	II	High	High	Measures 1, 6	Moderate*
254.3-255.2	Generally parallel to Hwy. 140 and La Plata River south of Redmesa	0.9	III	High	High	Measure 1	High
260.8-261.2	East of Hwy. 170 north of La Plata	0.4	III	High	High	Measure 1	High*

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
Draft EIS Agency Preferred Route in Mancos Valley Area							
1.5-1.6	Dolores River crossing, north side of valley	0.1	II	High	High	Closely parallel to existing TL; Measures 1, 3, 8, 9	High-Moderate
1.7-1.8	Dolores River crossing, south side of valley	0.1	II	High	High	Closely parallel to existing TL; Measures 1, 2, 5	High
3.1-4.6	Mancos Valley	1.5	III	High	High	Parallel to existing TL; Measures 1, 3	Moderate
5 C.S.	South of Dolores	--	III	High	High	Measure 10	High
13.4-17.0	Northwest of Mancos	3.6	II	High/ Medium	High/ Medium	Parallel to existing pipeline; Measures 1, 3	High
17.2-17.8	North of Mancos	0.6	II	Medium	High	Parallel to existing pipeline; Measures 1, 3	High
19.2-21.6	Generally parallel to Hwy. 160, north of Menefee Mtn.	2.4	II	High/ Medium	High	Parallel to existing pipeline; Measures 1, 3	High
Mancos Valley Central Variation							
18.4-20.1	North of Bauer Lake	1.7	III	High	High	Measure 1	High
21.0-21.4	Above West Mancos River	0.4	II	High	High	Measure 1	High

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
21.8-23.0	West Mancos River Valley	1.2	II	Moderate	High	Measures 1, 2 (at Mancos River only)	Moderate
23.5-24.0	Parallel to Highway 160	0.5	II	Moderate	High	Measures 1, 6	Moderate
24.5-25.7	Near Highway 160	1.2	II	Moderate	High	Measures 1, 6	Moderate*
Animas Valley Variation							
0.7-1.9	North of Hwy. 160 and northeast of Thompson Park	1.2	R	High	Medium	Parallel to existing pipeline; Measures 1, 3	High*
6.2-9.4	Generally parallel to Hwy. 160, northwest of Hesperus	3.2	R	Medium	High	Measures 1, 6	Moderate*
10.4-11.2	At Hesperus	0.8	II	Medium	High	Parallel to existing pipeline; Measures 1, 3	Moderate
15.1-15.7	Between Hwy. 160 and Wildcat Canyon Road	0.6	III	High	High	Parallel to existing pipeline; Measures 1, 6	Moderate
26.0-26.6	Crossing of Animas River, road and railroad	0.6	III/PR	High	High	Measures 1, 8	Moderate
San Juan Valley Variation							
1.5-1.6	Dolores River crossing, north side of valley	0.1	II	High	High	Closely parallel to existing TL; Measures 1, 3, 8, 9	High-Moderate

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
1.7-1.8	Dolores River crossing, south side of valley	0.1	II	High	High	Closely parallel to existing TL; Measures 1, 2, 5	High
3.1-4.6	Mancos Valley	1.5	III	High	High	Parallel to existing TL; Measures 1, 3	Moderate
5 C.S.	South of Dolores	--	III	High	High	Measure 10	High
8.4-9.6	Mancos Valley, northeast of Totten Reservoir	1.2	III	High	High	Crossing road parallel to existing TL; Measures 1, 3	Moderate*
12.5-13.1	Mancos Valley south from crossing of Hwy. 160	0.6	III	High	High	Parallel to existing TL; Measures 1, 3	Moderate
64.3-65.5	Northeast of Jewett Valley, north of Hwy. 550	1.2	II	Medium	High	Parallel to existing TL; Measure 1	High*
72.3-74.8	Northwest of Farmington	1.5	II	Medium	High	Parallel to road; Measures 1, 3, 8	Moderate*
77.9-78.1	La Plata River crossing near Farmington	0.2	III	High	High	Parallel to TL; Descent over prominent rim rock; Measures 1, 9	High
80.3-80.9	Crossing Glade Road north of Farmington	0.6	III/PR	High	High	Measures 1, 2	Moderate*
83.0-84.8	Crossing road northeast of Farmington	1.8	III/PR	High	High	Measures 1, 3	Moderate*

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]
86.6-87.9	West of Spencerville	1.3	III/PR	High	High/ Medium	Measures 1, 3	Moderate*

Note: 1 See Figure G-1
2 For environmental protection measures referenced by number, see legend at the end of this table and Tables 2-12 and 2-14 in Chapter 2.
3 Indicates impact levels following application of committed environmental protection measures.
4 See legend for explanations
* Indicates impacts would affect BLM or FS lands.

COMMITTED PROTECTION MEASURES

Pipeline

1. In all disturbed areas, successful regeneration of plant cover using indigenous species will be required.

2. The ROW construction clearing will be limited to a 50-foot width subject to slope stability engineering design needs, and the spoil will be used as a temporary roadbed or stockpiled in nearby unseen/less sensitive areas and hauled back to the site where it was removed.

3. The existing parallel road or utility corridor will be used as part of the disturbed zone for access or stockpiling.

4. The ROW construction clearing will be extended beyond the standard 75-foot width to create a more natural effect where parallel to the 345 kV transmission line from above Dolores to Mancos Hill.

Table G-1 (Continued)

Location Approx. Milepost	Place Names	Approx. Length (Miles)	Basis of Impact[1] VRM/ VQO	Physical contrast	Visibility	Committed Protection Measures and Notes[2]	Residual Impact Level[3]

Pipeline (Continued)

5. Road cuts will be kept at an angle at or near these road crossings as these crossings are in long view of the road.

6. The ROW boundary will be cleared with a natural appearing, irregular edge to minimize straight, non-natural lines.

7. Conifers of sufficient height and density will be planted to screen views of ROW.

8. The pipeline will be consolidated into a common corridor with existing, nearby utilities.

9. The pipeline will be rerouted to a less topographically prominent position.

Surface Facilities

10. For compression and metering facilities, disturbance would be kept to the minimum area necessary, the facilities would be carefully designed and sited to minimize visual contrast and take advantage of topographic or vegetative screening, and materials and colors would be selected to blend with the surroundings.

Ancillary Facility Codes

BV = Block Value
MS = Metering Station
CS = Compressor Station

APPENDIX H

AIR QUALITY - PLUME/VISIBILITY ANALYSIS

APPENDIX H
Table H-1

TransColorado Gas Transmission Project
Plume Visibility Modeling Results
Proposed Action

1. Piceance Creek Compressor Station and Dinosaur National Monument (PSD Class II Area)

Nitrogen oxides emission rate	=	39.73 lbs/hr
Background ozone concentration	=	0.4 ppm
Background visual range	=	170 kilometers
Source/observer distance	=	62.86 kilometers
Maximum source-Class I area distance	=	104.14 kilometers
Plume source-observer angle	=	11.25 degrees

VISCREEN Level 1 Analysis

Background	Theta (deg)	Delta E		Contrast	
		Critical	Plume	Critical	Plume
Sky	10	2.00	0.401	0.05	-0.002
Sky	140	2.00	0.237	0.05	-0.002
Terrain	10	2.00	0.124	0.05	0.000
Terrain	140	2.00	0.073	0.05	0.000

2. Olathe Compressor Station and Black Canyon of the Gunnison Wilderness Area (PSD Class I Area)

Nitrogen oxides emission rate	=	18.65 lbs/hr
Background ozone concentration	=	0.04 ppm
Background visual range	=	170 kilometers
Source/observer distance	=	23.50 kilometers
Maximum source-Class I area distance	=	38.8 kilometers
Plume source-observer angle	=	11.25 degrees

VISCREEN Level 1 Analysis

Background	Theta (deg)	Delta E		Contrast	
		Critical	Plume	Critical	Plume
Sky	10	2.00	0.906	0.05	-0.004
Sky	140	2.00	0.536	0.05	-0.004
Terrain	10	2.00	0.159	0.05	0.000
Terrain	140	2.00	0.093	0.05	0.000

3. Dolores 2 Compressor Station and Mesa Verde National Park (PSD Class I Area)

Nitrogen oxides emission rate	=	27.60 lbs/hr
Background ozone concentration	=	0.04 ppm
Background visual range	=	218 kilometers
Source/observer distance	=	16.73 kilometers
Maximum source-Class I area distance	=	38.10 kilometers
Plume source-observer angle	=	11.25 degrees

VISCREEN Level 1 Analysis

Background	Theta (deg)	Delta E		Contrast	
		Critical	Plume	Critical	Plume
Sky	10	2.00	2.040	0.05	-0.012
Sky	140	2.00	1.378	0.05	-0.012
Terrain	10	2.00	1.718	0.05	0.004
Terrain	140	2.00	1.152	0.05	0.004

VISCREEN Level 2 Analysis

Background	Theta (deg)	Delta E		Contrast	
		Critical	Plume	Critical	Plume
Sky	10	2.00	0.051	0.05	0.000
Sky	140	2.00	0.034	0.05	0.000
Terrain	10	2.00	0.042	0.05	0.000
Terrain	140	2.00	0.028	0.05	0.000

Since the Level 1 screening analysis could not assure that visibility within Mesa Verde National Park would not be significantly impaired, a more refined VISCREEN Level 2 analysis was performed incorporating measured meteorological data.

Source: Trinity Consultant, Inc. (1992).

APPENDIX H
Table H-2

TransColorado Gas Transmission Project
Plume Visibility Modeling Results
Agency Preferred Alternative

1. Piceance Creek Compressor Station and Dinosaur National Monument (PSC Class II Area)

Nitrogen oxides emission rate	=	39.73 lbs/hr
Background ozone concentration	=	0.04ppm
Background visual range	=	170 kilometers
Source/Observer distance	=	62.86 kilometers
Maximum source-Class I area distance	=	104.14 kilometers
Plume source-observer angle	=	11.25 degrees

VISCREEN Level 1 Analysis

Background	Theta (deg)	Delta E		Contrast	
		Critical	Plume	Critical	Plume
Sky	10	2.00	0.401	0.05	-0.002
Sky	140	2.00	0.237	0.05	-0.002
Terrain	10	2.00	0.124	0.05	0.000
Terrain	140	2.00	0.073	0.05	0.000

2. Olathe Compressor Station and Black Canyon of the Gunnison Wilderness Area (PSD Class I Area)

Nitrogen oxides emission rate	=	18.65 lbs/hr
Background ozone concentration	=	0.04 ppm
Background visual range	=	170 kilometers
Source/Observer distance	=	23.50 kilometers
Maximum source-Class I area distance	=	38.8 kilometers
Plume source-observer angle	=	11.25 degrees

VISCREEN Level 1 Analysis

Background	Theta (deg)	Delta E		Contrast	
		Critical	Plume	Critical	Plume
Sky	10	2.00	0.906	0.05	-0.004
Sky	140	2.00	0.536	0.05	-0.004
Terrain	10	2.00	0.159	0.05	0.000
Terrain	140	2.00	0.093	0.05	0.000

3. Dolores Alternate 1 Compressor Station and Mesa Verde National Park (PSD Class I Area)

Nitrogen oxides emission rate	=	31.83 lbs/hr
Background ozone concentration	=	0.04 ppm
Background visual range	=	218 kilometers
Source/Observer distance	=	33.8 kilometers
Maximum source-Class I area distance	=	57.0 kilometers
Plume source-observer angle	=	11.25 degrees

VISCREEN Level 1 Analysis

Background	Theta (deg)	Delta E		Contrast	
		Critical	Plume	Critical	Plume
Sky	10	2.00	0.935	0.05	-0.004
Sky	140	2.00	0.553	0.05	-0.004
Terrain	10	2.00	0.227	0.05	0.000
Terrain	140	2.00	0.133	0.05	0.000

Source: Trinity Consultants, Inc. (1992)

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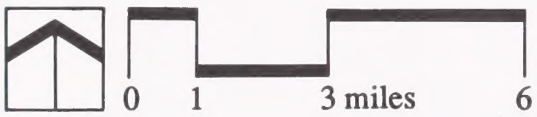
LAND OWNERSHIP AND MANAGEMENT STATUS

1 of 3



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National Forest

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U. S. Bureau of Land
Management. Montrose
TransColorado gas
transmission project.

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Above Ground Facilities	TransCo Proposed Route	Final EIS Agency Preferred Route	Grand Valley Variation	Draft EIS Agency Preferred Route
1. Piceance Creek Compressor Station (Questar)	□	□		
2. Big Hole Meter Station (Questar)	▽	▽		
3. Meeker Compressor Site & Meeker Meter Station (WestGas)	□▽	□▽		
4. Alternate DeBeque Meter Site (Rocky Mountain)			▽	
5. Expansion of Existing DeBeque Compressor Station and Associated DeBeque Meter Station (Rocky Mountain Natural Gas Co.)	■▽	■▽	■▽	
6. DeBeque Compressor Site (WestGas)	□	□		
7. DeBeque Meter Station (WestGas)	▽	▽	▽	

■ Existing Compressor Station
□ TransColorado Proposed/Agency Preferred Compressor Station
☒ Possible TransColorado Proposed/Agency Preferred Compressor Station
▭ TransColorado Proposed Compressor Station
◫ Agency Preferred Compressor Station
⊞ Possible Agency Preferred Compressor Station
▽ Meter Station

1. Piceance Creek Compressor Station (Questar)
2. Big Hole Meter Station (Questar)
3. Meeker Compressor Site & Meeker Meter Station (WestGas)
4. Alternate DeBeque Meter Site (Rocky Mountain)
5. Expansion of Existing DeBeque Compressor Station and Associated DeBeque Meter Station (Rocky Mountain Natural Gas Co.)
6. DeBeque Compressor Site (WestGas)
7. DeBeque Meter Station (WestGas)

Grand Valley Variation

Compressor Station Interconnect Pipeline

LAND OWNERSHIP AND MANAGEMENT STATUS

1 of 3

0 1 3 miles 6

- Bureau of Land Management
- National Forest
- State
- Indian
- National Park/Monument
- Private
- BLM District Boundary
- BLM Resource Area Boundary
- Indian Reservation Boundary
- Proposed Route
- Final EIS Agency Preferred Route
- Draft EIS Agency Preferred Route
- Route Variation
- 50P Proposed Route Mile Post
- 50A Agency Preferred Mile Post
- 50V Route Variation Mile Post

TRANSCOLORADO GAS TRANSMISSION PROJECT

BLM White River Resource Area DISTRICT
BLM GRAND JUNCTION DISTRICT
BLM CRAIG
BLM Grand Junction Resource Area
DE BEQUE
White River National Forest
Grand Mesa N.F.
Colorado River
Rio Blanco Co.
Garfield Co.
Mesa Co.

4. Alternate DeBeque Meter Site (Rocky Mountain)

5. Expansion of Existing DeBeque Compressor Station and Associated DeBeque Meter Station (Rocky Mountain Natural Gas Co.)

Compressor Station Interconnect Pipeline

6. DeBeque Compressor Site (WestGas)

7. DeBeque Meter Station (WestGas)

DE BEQUE

Garfield Co.
Mesa Co.

Colorado River

White River National Forest

Grand Mesa N.F.

PALISADE

Palisade Watershed

BLM Grand Junction Resource Area

GRAND JUNCTION

Colorado River

Grand Mesa National Forest

WHITEWATER

BLM GRAND JUNCTION DISTRICT

BLM MONTROSE DISTRICT

See Sheet 2 of 3

Matchline

Mesa Co.
Delta Co.

DELTA

Delta Co.
Montrose Co.

Above Ground Facilities	TransCo Proposed Route	Final EIS Agency Preferred Route	Grand Valley Variation	Draft EIS Agency Preferred Route
8. Olathe Compressor Station (TransColorado)	☐	☐		
9. Maverick Compressor Station & Associated Meter Station (Rocky Mountain)				▽
10. Redvale Compressor Station and Associated Meter Station (Rocky Mountain)		◫▽		
11. Big Gypsum Compressor Site & Associated Meter Station (Rocky Mountain)	⊟▽			
12. Dolores Compressor Station Alternate Site #1 (TransColorado)	☒	◫		⊞

- ■ Existing Compressor Station
- ☐ TransColorado Proposed/Agency Preferred Compressor Station
- ☒ Possible TransColorado Proposed/Agency Preferred Compressor Station
- ⊟ TransColorado Proposed Compressor Station
- ◫ Agency Preferred Compressor Station
- ⊞ Possible Agency Preferred Compressor Station
- ▽ Meter Station

LAND OWNERSHIP AND MANAGEMENT STATUS

2 of 3

0 1 3 miles 6

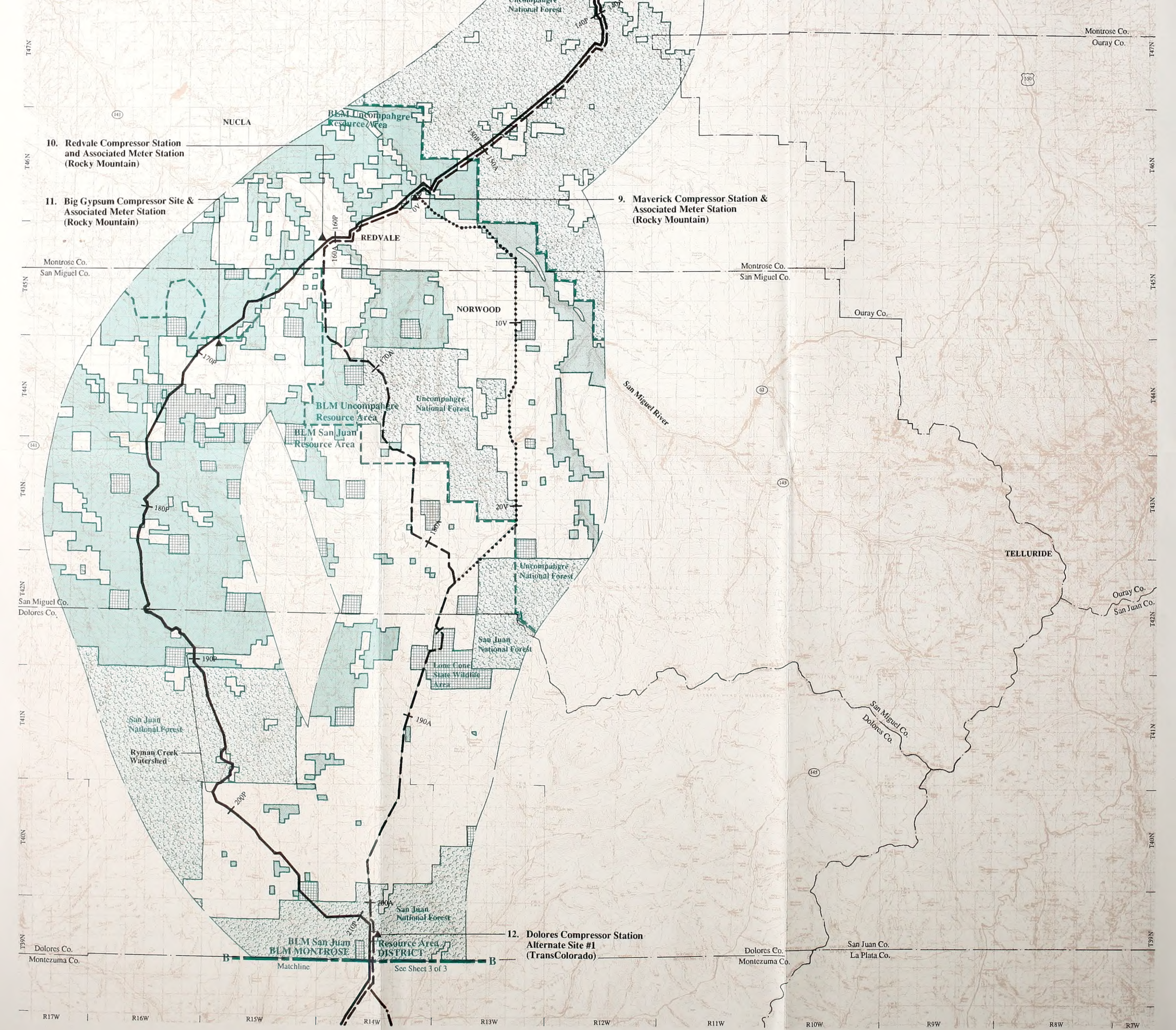
- Bureau of Land Management
- National Forest
- State
- Indian
- National Park/Monument
- Private

- BLM District Boundary
- BLM Resource Area Boundary
- Indian Reservation Boundary
- Proposed Route
- Final EIS Agency Preferred Route
- Draft EIS Agency Preferred Route
- Route Variation
- 120P Proposed Route Mile Post
- 120A Agency Preferred Mile Post
- 50V Route Variation Mile Post

TRANSCOLORADO GAS TRANSMISSION PROJECT

JUNCTION DISTRICT
See Sheet 1 of 3
MONTROSE DISTRICT
BLM GRAND
BLM
Matchline
Mesa Co.
Delta Co.
Grand Mesa National Forest
Gunnison River
DELTA
Delta Co.
Montrose Co.
Mesa Co.
Montrose Co.
Uncompahgre National Forest
NUCLA
BLM Uncompahgre Resource Area
REDVALE
Montrose Co.
San Miguel Co.
Montrose Co.
Ouray Co.
Montrose Co.
San Miguel Co.

8. Olathe Compressor Station (TransColorado)
9. Maverick Compressor Station & Associated Meter Station (Rocky Mountain)
10. Redvale Compressor Station and Associated Meter Station (Rocky Mountain)
11. Big Gypsum Compressor Site & Associated Meter Station (Rocky Mountain)


10. Redvale Compressor Station and Associated Meter Station (Rocky Mountain)
11. Big Gypsum Compressor Site & Associated Meter Station (Rocky Mountain)
9. Maverick Compressor Station & Associated Meter Station (Rocky Mountain)
12. Dolores Compressor Station Alternate Site #1 (TransColorado)
NUCLA
REDVALE
NORWOOD
TELLURIDE
BLM Uncompahgre Resource Area
BLM San Juan Resource Area
BLM MONTROSE DISTRICT Resource Area
Uncompahgre National Forest
San Juan National Forest
Lone Cone State Wildlife Area
Ryman Creek Watershed
San Miguel River
Montrose Co.
Ouray Co.
San Miguel Co.
Dolores Co.
San Juan Co.
Montezuma Co.
La Plata Co.
140P
150P
150A
160P
160A
170P
170A
180P
180A
190P
190A
200P
210P
10V
20V
B
Matchline
See Sheet 3 of 3
T47N
T46N
T45N
T44N
T43N
T42N
T41N
T40N
T39N
R17W
R16W
R15W
R14W
R13W
R12W
R11W
R10W
R9W
R8W
R7W

LAND OWNERSHIP AND MANAGEMENT STATUS

3 of 3

0 1 3 miles 6

- Bureau of Land Management
- National Forest
- State
- Indian
- National Park/Monument
- Private
- BLM District Boundary
- BLM Resource Area Boundary
- Indian Reservation Boundary
- Proposed Route
- Final EIS Agency Preferred Route
- Draft EIS Agency Preferred Route
- Route Variation
- 260P Proposed Route Mile Post
- 260A Agency Preferred Mile Post
- 50V Route Variation Mile Post

TRANSCOLORADO GAS TRANSMISSION PROJECT

Above Ground Facilities	TransCo Proposed Route	Final EIS Agency Preferred Route	Grand Valley Variation	Draft EIS Agency Preferred Route
13. Dolores Compressor Station Alternate Site #2 (TransColorado)	⊟			⊠
14. TransWestern/El Paso Interconnect	▽	▽		

- ■ Existing Compressor Station
- □ TransColorado Proposed/Agency Preferred Compressor Station
- ⊠ Possible TransColorado Proposed/Agency Preferred Compressor Station
- ⊟ TransColorado Proposed Compressor Station
- ◫ Agency Preferred Compressor Station
- ⊞ Possible Agency Preferred Compressor Station
- ▽ Meter Station

R18W R17W R16W R15W R14W R13W R12W

T43N T42N T41N T40N T39N T38N T37N T36N T35N T34N

San Miguel Co. / Dolores Co.

Dolores Co. / Montezuma Co.

Matchline B — See Sheet 2 of 3 — B

BLM MONTROSE DISTRICT

BLM San Juan Resource Area

San Juan National Forest

STONER

13. Dolores Compressor Station Alternate Site #2 (TransColorado)

DOLORES

Dolores River

CORTEZ

MANCOS

MANCOS HILL

HESPERUS

DURANGO

Mesa Verde National Park

Mancos Valley Central Variation

Animas Valley Variation

Montezuma Co. / La Plata Co.

BLM San Juan Resource Area

R11W R10W R9W

Central Variation

Animas Valley Variation

CORTEZ

MANCOS

MANCOS HILL

HESPERUS

DURANGO

Mesa Verde National Park

Mesa Verde National Park

BLM San Juan Resource Area

BLM San Juan Resource Area

Ute Mountain Indian Res.

Ute Mtn. Indian Res.

So. Ute Indian Res.

Southern Ute Indian Res.

Animas River

Montezuma Co.

La Plata Co.

Montezuma Co.

La Plata Co.

BLM MONTROSE DISTRICT

Montezuma Co.

San Juan Co.

BLM ALBUQUERQUE DISTRICT

COLORADO

NEW MEXICO

BLM MONTROSE DISTRICT

La Plata Co.

San Juan Co.

BLM ALBUQUERQUE

BLM Farmington

DISTRICT

Resource Area

Navajo Indian Reservation

San Juan Valley Variation

BLM Farmington Resource Area

San Juan River

SHIPROCK

Navajo Indian Reservation

Animas River

FARMINGTON

BLOOMFIELD

San Juan River

14. TransWestern/ El Paso Interconnect

Blanco Gas Processing Plant

R18W R17W R16W R15W R14W R13W R12W R11W R10W R9W

T36N T35N T34N T33N T32N T31N T30N T29N

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